

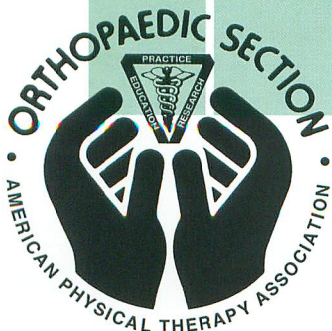
# ORTHOPAEDIC

# PHYSICAL THERAPY PRACTICE

THE MAGAZINE OF  
THE ORTHOPAEDIC SECTION, APTA

VOL. 14, NO. 4

2002



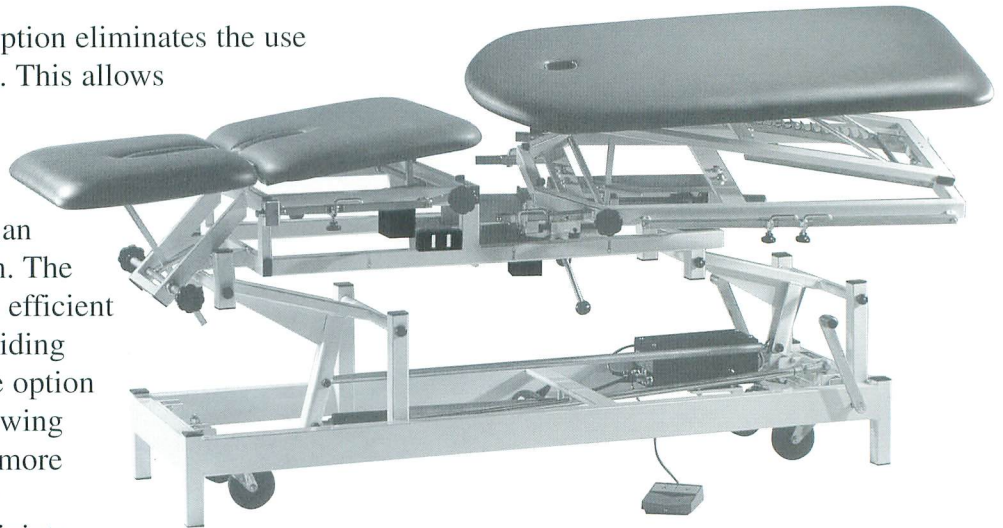
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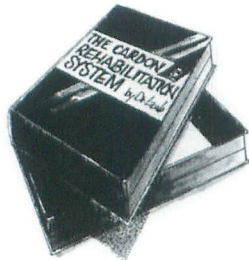
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St. Augustine, FL	Paris/Viti	Sep 25 - 29
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St. Augustine, FL	Yack	Sep 27 - 29
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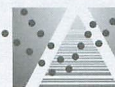
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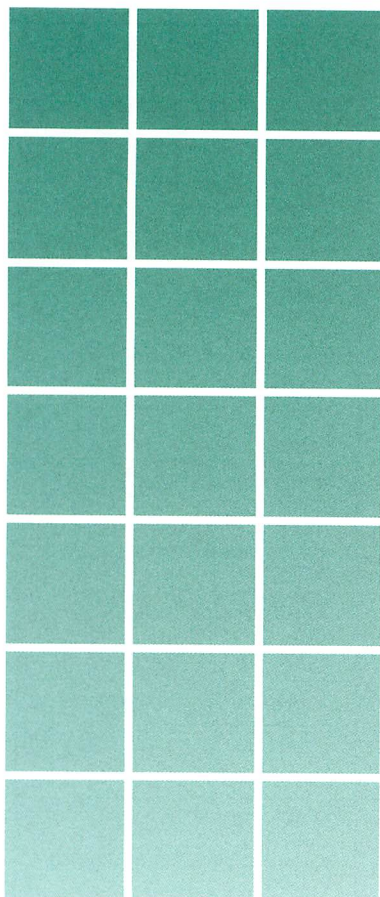
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- Facilitation of quality research, and
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## Editor's Message



### Advocacy

I recently attended APTA's 12th Annual State Government Affairs Forum in Louisville, KY. What an energizing meeting! There were approximately 90 people in attendance. Some of the topics of discussion included Direct Access and Practice Act Legislation, Federal and State Legislative Affairs Updates, Medicare, Manipulation Issues, Infringement Issues, Internet Resources, Fundraising for Your PAC, Running for Public Office, and Effective Testifying and Letter Writing. I came home with a much better understanding of the legislative process and a better appreciation for our Government Affairs staff at APTA. I have been actively involved in Tennessee's Legislative Committee for more than 5 years, but this meeting again reminded me of the importance of one voice. One PT contacting his or her own legislator is a very powerful thing.

At the meeting, we heard from several of Kentucky's legislators. A common theme expressed by each of them was that personal contact by a constituent was most important. Information sharing from a content expert is very important, especially on complicated issues, but people who vote for the legislator have a little more clout. Some legislators preferred letters; others preferred calls or e-mails. Regardless, they all said contact by a constituent was vital. In addition, following up with the legislator is important too. That is, staying in contact with the legislator after they do (or don't do) what you ask. Sending a thank-you note or expressing your appreciation for listening to you, even if they don't vote in your favor are good ways to begin to build a relationship with your legislator. Another frequent comment was to build that relationship with your legislators as constituents who are also physical therapists or physical therapist assistants. These relationships are the cornerstone of effective lobbying and advocacy. Make sure your Senators and Representatives know who you are, and contact them every session, not just when you want something from them. Visit the Senator or Representative at their home office, or attend one of their town meetings. **Volunteer to work in a campaign.** Elected officials appreciate volunteers and may be more likely to listen to your concerns

if they are elected. Chances are, some members of your own Chapter are Democrats, while others are Republicans or Independents. If a number of you volunteer for different candidates or different parties, your common interests related to physical therapy will still be heard!

When you do visit or contact an elected official's office, remember that you may not always have the opportunity to talk with the official directly. If he or she is not available, find out which staff member handles health care issues and ask what preferences the official has in terms of contact. Also, remember that making contact once is not enough. Contact has to be regular and the message has to be clear. Sometimes, if you can find something in common with the legislator—say you went to the same high school, or you treated his or her cousin for a knee injury—you may get a little more attention from the official. You can offer to be a resource on matters related to physical therapy or health care in general. Again, contact has to be regular and every year. You can't wait until during session when your bill is about to be heard. Most of all don't be afraid to talk to your legislators. Elected officials are the same as you and I—just people.

Senator David Karem of Kentucky shared a number of 'rules for communicating with legislators' with us. The two I remember most are (1) to be honest, and (2) tell the whole story. Honesty about your issues is very important. If you are dishonest and the legislator presents your side, chances are that someone listening will know the truth. This would likely result in the legislator ending up with egg on his or her face because you didn't tell the truth. This is not a good way to build a relationship, and most likely, that legislator won't support you again. It is never a good idea to burn bridges, especially in the political arena. The second 'rule' he shared was to tell the whole story. You want to be clear in your message, but Senator Karem stated he liked to know what to expect from the opposition. Leaving out important information can lead to surprises that elected officials may not like. While you don't have to give away all of your plans or strategies, you should be able to present both sides of the argument—obviously being more persuasive with your own viewpoint.

Mention who your supporters are and if you have built any coalitions from other groups for support of your position. This also may help the legislators see your issues as real and not just as 'turf' battles. Let's face it, advocating for direct access is one thing. However, deferring your right to continue to perform manipulation or the prescription and fabrication of orthotics while at the same time arguing that another profession cannot perform modalities may easily be viewed by legislators as turf issues.

A common question that I am asked by PTs and PTAs who are just beginning to participate in legislative activities is "How do I know what to say?" Good resources for what to say on specific issues are the "Take Action Packets" and "Talking Points" that are available from APTA. Also, your own component should develop specific talking points on your specific issues relative to the unique situations in your state. Having group discussions for PTs and PTAs, either in person or by e-mail, is a great way to build confidence in newer participants in the legislative process. The issues you have in your state are likely some of the same issues that other components are facing as well. You don't have to reinvent the wheel. Contact APTA's Government Affairs office and ask for help—that is what they are here for. Dave Mason is APTA's Vice President of Government Affairs. Justin Elliot is Associate Director and Margaret Fenwick is Assistant Director of State Relations in the Government Affairs office. They all can be reached at APTA (1-800-999-APTA or [www.apta.org](http://www.apta.org)). They are all wonderful resources who are very willing to provide assistance to you and your component.

Remember that one voice can make a huge difference in terms of advocacy. Whether you sing or speak, don't be afraid to use your voice!



*Susan A. Appling, PT, MS, OCS  
Editor, OP*



# President's Message

I would like to take the opportunity to update Section members on some of the many issues that the Orthopaedic Section is facing. I just recently returned from the Fall Orthopaedic Section BOD Meeting in LaCrosse, Wisconsin. We met Friday night and then most of the day on Saturday. It was clear to me that the Orthopaedic Section faces a number of challenges, many of which are inter-related. I do believe that we are on the right path to addressing most of these issues. I have learned that problems are always going to occur no matter what, and that they always seem to make us grow stronger. As members, I believe that you should know what important issues the Section is facing and what we are doing to address them.

## FIDUCIARY RESPONSIBILITY

Over the last 18 months we have contributed over \$250,000 to different groups including the Pediatric Section (\$12,600), the Foundation for Physical Therapy (\$190,000), Diversity 2000 Scholarships (\$25,000), and Allen Press (\$15,000) who formerly published *JOSPT*. This considerable outlay of money coupled with the low stock market has made cash flow very tight. We are not earning between \$60,000 and \$80,000 in interest payments from the stock market that we used to see each year. Much of this interest money was used for donations to the Foundation, diversity scholarships, benevolent giving, etc. When we experienced cash flow problems, we borrowed money to get us through instead of taking money out of the stock market when it was doing poorly. Our financial shape has recently improved, and we are now paying down our line of credit. The Finance Committee continues to do a great job monitoring the Section's finances.

The Orthopaedic Section's Home Study Course program is an area where the Section has derived a substantial amount of non-dues revenue over the years. Besides interest derived from the stock market, Home Study Courses have always been a place where we could count on extra revenues being generated. However, this year our registration revenues are down somewhat. Therefore, we

are not receiving the income that we were previously accustomed to from home study courses. The good news is that we have a number of new and exciting Home Study Courses for 2003: Including *The Patient in Therapy: The Power of the Psyche*; *Evidence-based Practice for the Upper and Lower Quarter*; and *Physical Therapy for the Cervical Spine and Temporomandibular Joint*. Mary Ann Wilmarth, our HSC Editor, the HSC Advisory Panel, and the Section office are working extremely hard to insure that we not only continue to produce a great product but one that will also generate more income from this source of continuing professional education.

As everyone knows, the stock market continues to be depressed, and the Orthopaedic Section, just like many individuals and corporations have a considerable amount of our reserve money invested in the market. When will the markets go back up? No one really knows for sure. So what do we do? With our investments, we are just going to try to wait it out. These are our reserves. Most of our investment experts suggest that we just hang in there. Therefore, with a decrease in revenue, the Orthopaedic Section BOD has begun to look at a few other options. At the Fall Board of Directors Meeting we approved a feasibility study to look at building the 'footprint,' the previously planned adjoining other half of the building that we already own. One of the biggest expenditures, the elevator tower, is already in place. Why now? Interest rates are low, and we are in a good position to sell some land that we own in front of our building. Also, rental income could offset much of the costs and provide future revenue security. In our existing building, our current tenants supply us with a good cash flow each month. In addition, a number of new businesses are being built in the immediate area. So, we are currently cautiously optimistic of the local real estate market. We will be hiring a consultant that will look with expertise and detail into the local real estate market and the feasibility of building a new addition. A report will be brought back to the Orthopaedic Section Board of Directors by CSM 2003.

## FOUNDATION FOR PHYSICAL THERAPY

The Orthopaedic Section has given \$777,000 to the Foundation for Physical Therapy over the last 7 years. We have always been a major supporter of the Foundation and will continue to do so as long as our resources allow it. Presently, we are also looking into ways to lessen the financial stress of these recurring expenditures in supporting the Foundation. We absolutely want to continue supporting the Foundation. We also want to find a way where we would not have such a significant recurring burden on our annual budget, especially in these tough financial times. We have some good suggestions including starting an endowment fund for the Foundation or something similar. Also, during CSM last year a motion was made by Nancy White, previous Orthopaedic Section Vice President, and was adopted by the membership to convene a task force to address strategic planning for revenue generation for the Section. Areas for consideration were to include but not be limited to innovative member services that will generate revenue, an aggressive plan to sell our land, and a plan for financial relationships between the SIGs and the Section. The Orthopaedic Section Board of Directors appointed a task force consisting of Dorothy Santi, Nancy White, Annette Iglarsh, Joe Kleinkort, Deborah Lechner, John Childs, Leza Hatch, and Joe Godges, as Board Liaison. The purpose of the task force is to look into developing new ideas to generate revenue. The task force has come up with a number of great ideas that we look forward to implementing. I hope that we will find a solution that will enable us to continue to financially support the Foundation for important clinical research and continue to maintain a good day-to-day financial picture.

## JOSPT

The *Journal of Orthopaedic & Sports Physical Therapy* has had a year of transition, and with transition, many obstacles to overcome. A new location, a new editor, a new editorial board, a new President, new employees, and a new Executive Director are an awful lot of change for one year. With the recent

resignation of the Executive Director, Tina Vogel, and a new Executive Director/Publisher hired, Edith Holmes, we hope to bring some much needed stability to the *Journal* office. Edie brings good experience and is very well qualified for the job.

The Orthopaedic Section is looking into how the *Journal* is governed. Right now some questions regarding governance of the *Journal* have yet to be resolved. New bylaws have not yet (as of this writing) been fully approved by both the Orthopaedic Section and the Sports Section. In addition, we don't have a revised budget. Running a *Journal* that is co-owned by two Sections is like a marriage, we often agree on most issues but sometimes don't always agree on all issues. We hope that these issues will be resolved soon. Our Board representatives, Lola Rosenbaum and Gary Smith, are working with other members of the *JOSPT* Board to finally approve the bylaws and complete a budget. We all

agree that the *Journal* is our most important member benefit and that we both want to continue to publish quality manuscripts that make an impact on the way therapists practice orthopaedic and sports physical therapy. We also know that Guy Simoneau and his staff have done an outstanding job in his first year, especially when considering all of the changes. As Guy gets more experience and Edie gains confidence in her new role, we are sure that we will see good things happening with the *JOSPT*.

#### WEBSITE

The Orthopaedic Section's BOD members all realize that our current website needs to be updated. At our recent Fall BOD Meeting we approved an initial \$10,000 to start the process of updating. The website will be revamped and modernized. We have ambitious plans, which include the possibility of adding *OP* and future, current, and past Home Study Courses on the web; a new and improved

bulletin board feature; more links; more interaction; and more information for our members. We are excited about the future possibilities and hope that our new website will give our members a better connection to the Section and Section activities. We are hoping to have our new look on line by the New Year.

I have tried to present some of the issues the Section is facing and what we are doing to address them. We will continue to work hard to make your Orthopaedic Section great. Any and all suggestions are welcome.



*Thank you,  
Michael T. Cibulka,  
PT, MHS, OCS  
President*



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# An Evidence-based Algorithm for Examination of the Cervical Spine

Ron Schenk, PT, PhD, OCS, FAAOMPT; Irina Dukhon, PT, MS; Zachary Guyer, PT, MS; Martha Sommers, PT, MS; Alison Venning, PT, MS; Kate Zalewski, PT, MS

Cervical spine pain is a common musculoskeletal impairment that may affect about 10% of the general population. The symptoms associated with cervical spine dysfunction may be attributed to poor sitting posture characterized by a forward head position and flexion of the lumbar spine. Contributing factors may include computerization of the workplace which requires employees to sit at a desk or computer for several hours, making cervical spine pain more likely to occur.

Despite the prevalence of this impairment, there is a lack of evaluative tools that accurately and objectively document cervical spine pain. A particular problem faced by physical therapists is the fact that there are numerous methods for evaluating and treating cervical spine pain. Despite the number of existing methods, there is a void in research supporting these methods.

Cervical spine pain occurs half as often as low back pain and slightly more often in women than men.<sup>1</sup> According to a study conducted by Hermann and Reese<sup>2</sup> cervical spine disorders accounted for a substantial number (26%) of physical therapy outpatient visits each year. Makela et al<sup>3</sup> also found that older patients and those involved in both mentally and physically demanding working environments were more likely to experience neck pain. Because of the difficulty in establishing the causal factors related to cervical spine pain, diagnosing the condition is challenging. In addition, neck pain in one-third of patients is not self-limiting and may produce moderate long-term disabilities.

## PREVALENCE

Makela et al<sup>3</sup> described the distribution, determinants, and consequences of chronic neck syndrome in Finland's population. The authors reported that there was no single cause of neck pain, and that it was caused by many various cooperating factors.

Despite the fact that the direct cause of neck pain is often difficult to determine, patients experiencing cervical

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Because of the difficulty in establishing the causal factors related to cervical spine pain, diagnosing the condition is challenging.  
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spine impairments still require effective evaluation and treatment procedures. There are numerous methods for evaluating cervical spine pain with each resulting in a conclusion that determines the course of treatment undertaken by the evaluator.<sup>4</sup> Various evaluative schemes could theoretically diagnose various tissues as the possible source of pain, and subsequently determine inconsistent treatment decisions. Because of this inconsistency, a need for a reliable and valid way of evaluating cervical spine pain has been recognized. Also, research indicates that those patients treated based on classification were shown to present with better treatment results than those who were not assigned to a classification prior to initiation of treatment.<sup>4</sup>

## CERVICAL SPINE CLASSIFICATION SYSTEMS

The reliability and validity of cervical spine classification systems have not been examined as critically as have the lumbar classification systems. Riddle<sup>5</sup> reviewed lumbar classification systems and found no one classification system to be more reliable than others.

The Paris classification approach maintains that treatment of a spinal dysfunction based solely on symptoms may be inefficient and an unreliable technique. Paris<sup>6</sup> focused his assessment and treatment of spinal dysfunction on a thorough history, structural examination, assessment of active and passive motion of the spine, and palpation. A focus of passive assessment in this approach is determination of passive intervertebral motion. Passive intervertebral motion (PIVM) tests are used to assess forward

and backward bending, side bending, and rotation by palpation of the spaces between spinous processes of the spine. The patient does not actively participate in this portion of the assessment process.

Gonnella, Paris, and Kutner<sup>7</sup> conducted a study assessing the reliability in evaluating PIVM. The results of the study demonstrated that intratester reliability in assessing PIVM is good in trained examiners, but intertester reliability is poor.

McKenzie's system of classification<sup>8</sup> is based on syndrome-specific treatment methods. The McKenzie exam includes the patient history, observation of sitting and standing postures, the outcome of repeated movements, and effect of such movements on the distribution and intensity of the patient's symptoms. The McKenzie classification system describes 3 lumbar and cervical spine syndromes. The 3 syndromes include the postural syndrome, dysfunction syndrome, and derangement syndrome. Whereas pathology is described as the cause of dysfunction and derangement syndromes, no pathology is indicated in the postural syndrome.

McKenzie<sup>9</sup> noted that the centralization phenomenon occurred in the cervical and thoracic spine when the appropriate movements were performed, and were just as reliable as in the lumbar spine.

## DISCUSSION

An example of an algorithm to examine the cervical spine is depicted in Figure 1. The cervical spine algorithm incorporates several schools of thought including McKenzie, the facet model, and muscle imbalance.

The cervical spine algorithm requires a subjective and structural examination typically performed by most physical therapists treating this condition. The structural examination is followed by examination of active motion with particular attention paid to both the quantity and quality of movement.

The examination begins with collection of a thorough history or subjective examination to determine, if possible, the

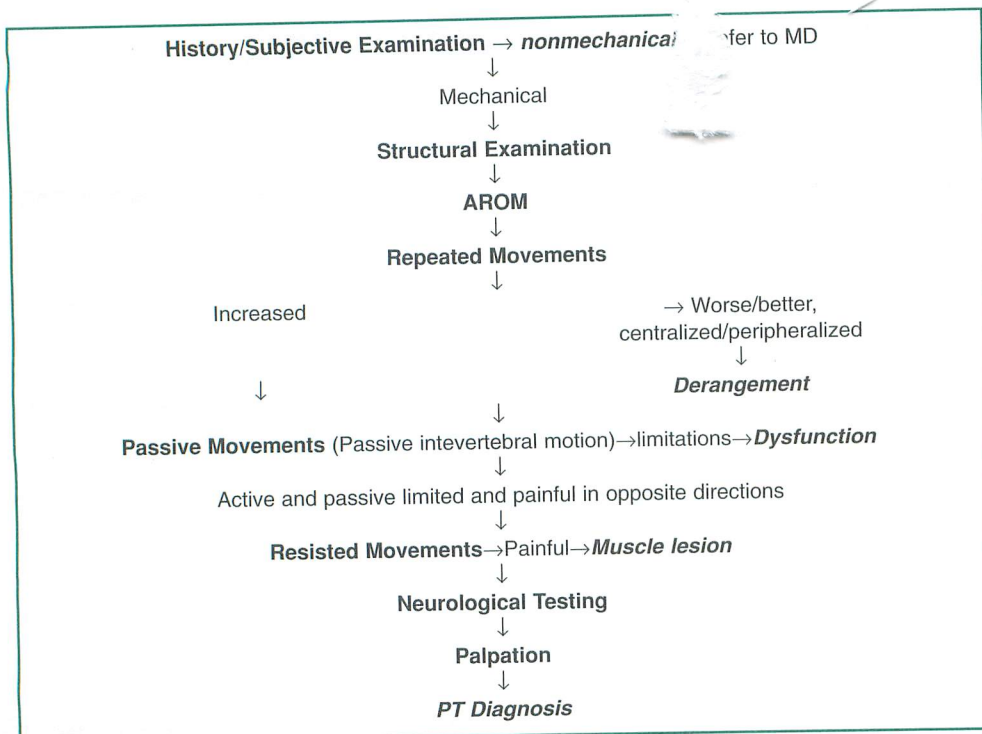


Figure 1. Cervical Spine Examination Algorithm.

source/cause of injury. The subjective examination, along with the objective data collected during the evaluation, aids in establishing the origin, area, nature of pain, and behavior of symptoms, and guides treatment. If origin of pain is of a non-mechanical origin (ie, presence of Stoddard's warning signs), the patient should be referred to the MD for further medical testing. In that case where pain behavior appears to respond to mechanical forces, the patient undergoes a series of objective tests.

Initial testing includes active movements of the spine (ie, flexion, extension, side-bending, and rotation) to determine AROM, both the quality and quantity of movement. Next, the patient performs repeated movements to further differentiate directions that either alleviate or exacerbate symptoms. The patient with pain made worse or better during movement and/or with pain that peripheralizes or centralizes is categorized into the derangement category. Patients are classified as having a dysfunction when pain is increased or decreased at end range only. The repeated movements that are assessed include protraction, retraction, and retraction with extension in sitting. Cervical rotation and cervical rotation with extension are also assessed in supine.

Patients who fit into the dysfunction category undergo additional testing to distinguish contractile vs. noncontractile

tissues as sources of limitation of spinal mobility and pain. Muscle imbalances are determined through flexibility testing and muscle length testing of the scapulo-humeral, glenohumeral, long neck flexor, scalene, suboccipital, and axioscapular muscles. Single segmental mobility testing determines joint mobility (ie, hypomobility or hypermobility), while break tests (manual muscle test) determine presence and severity of a muscle lesion.

The next 3 parts of the algorithm are common to both the dysfunction and derangement categories. Neurological testing examines the integrity of the neurological system (DTRs, nerve tension tests). Palpation assesses fascial status related to myofascial restrictions. Lastly, special tests may be used to obtain additional objective data.

The cervical spine algorithm (CSA) was used to develop an index for measuring cervical spine function in a study by Dukhon et al.<sup>10</sup> In this study, 8 patients with cervical spine complaints were examined using the algorithm at the first and third physical therapy visits. The cervical spine index score was then compared to the Neck Disability Index. The two tools showed a fair to good correlation with  $r = .26$  at the first visit and  $r = .77$  at the third visit.

Alone, particular components of examination approaches did not correlate well with the NDI. This is consistent with Riddle's<sup>4</sup> findings related to lumbar

classification systems not being comprehensive. Table 1 depicts the findings of this pilot study.

Table 1. Pearson Correlations ( $r$ ) between the Cervical Spine Algorithm (CSA) and Neck Disability Index (NDI) at the first and third physical therapy visit ( $n=8$ ) ( $p<.05$ )

	CSA 1	CSA 2
NDI 1	.26	
NDI 2		.77

The classification schema used with the McKenzie approach was not found by Riddle<sup>4</sup> to be exhaustive in the description of symptom patterns and placement of patients with encompassing disease processes. Also, those patients who did not respond favorably to the test movements did not fit a treatment classification and were unable to be treated.

Paris's classification system based on PIVM was found by Gonnella et al<sup>7</sup> to have limited intertester reliability. The authors suggested that the reason for this limitation may have been due to reliance on a subjective palpation exam and difficult judgements of small movements within the spine. Interestingly, one classification system was not found to be superior to another. Riddle<sup>4</sup> suggested that this occurrence was due to the many differences that existed between systems. Each approach, however, was found to have a varying degree of reliability, which suggested that each exam method has valuable assessment sections. By combining the significant components in the aforementioned McKenzie, Paris, and muscle balance approaches, as done in the CSA, the physical therapist may be able to attain a broader perspective of the patient's impairments than if the approaches were used individually. By synthesizing the various examination components, the physical therapist may then be able to make a functional diagnosis to indicate appropriate treatment interventions.

The results of the pilot study demonstrate that the CSA and the NDI had a high correlation ( $r = .77$ ) on the third visit. The degree of correlation between each examination component with the NDI was also examined. An excellent correlation was found between the AROM and repeated movements components and the NDI, and a good correlation was found with the palpation com-

ponent as compared to the NDI. These relationships indicated that these examination sections were highly related to a person's function. This conclusion was found to be consistent with the literature.

In support of all 3 previously mentioned evaluation sections, Maher and Adams<sup>16</sup> found manual therapy tests that provoke patients' symptoms to be more reliable than judging stiffness in the spine. In the present study, active movements, repeated movements, and palpation all were performed to reproduce patients' symptoms.

Razmjou et al<sup>17</sup> found further support of the repeated movement examination section. The repeated movement portion of the evaluation was taken from portions of McKenzie's classification approach. The authors found a perfect interexaminer agreement to be present using Cohen's Kappa statistic when patients were 55 years of age or younger. This excellent reliability is consistent with the excellent correlation present between the repeated movement section and the NDI, and it suggests that repeated movements were a reliable part of the physical therapy exam as related to patient function.

The structural portion of the examination was also found to have a good correlation with the NDI. Saal et al<sup>18</sup> found that patients with disc herniations improved the most when given exercises that included those stressing postural re-education and body mechanics. Therefore, the structural examination, which revealed poor posture or body mechanics, was found to be a reliable assessment tool when related to patients' functional impairments.

Although passive intervertebral motion testing was found to have high intrarater reliability by Gonnella et al,<sup>7</sup> the portion of the examination with the least correlation to the NDI was the PIVM section. This finding was consistent with Maher and Adams<sup>16</sup> who concluded that techniques assessing stiffness yielded unreliable results. They also stated that the basis for clinical decisions should be on pain provocation tests rather than on subjective tests that assess joint contracture, alignment, or muscle tension. Therefore, although intrarater reliability was established, PIVM was not found to be as reliable of an assessment tool in assessing patient function in this study as other portions of the exam. This finding

was consistent with Maher and Adams's<sup>16</sup> conclusions.

## CONCLUSIONS

To justify physical therapy treatment for cervical spine pain in a fluctuating medical environment, an objective functional assessment tool must be established. It is theorized that this tool will accurately and efficiently aid physical therapists in providing relevant patient treatment interventions.

The results of this pilot study showed a correlation between the CSA and the NDI. An examination scheme which incorporates several schools of thought, such as the CSA, may relate to patient function and may prove to be a valuable clinical tool. The overall results of this pilot study warrant more research on the CSA and its components to further support it as a reliable and valid physical therapy functional evaluation tool.

Improvements to this pilot study may include increasing the number of subjects to more accurately determine the relationship between the CSA and the NDI. Increased number of subjects would improve the power of the statistical findings, allow for better generalizability of the conclusions, and allow for easier identification of possible statistical outliers.

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# Implementing an Evidence-based Transitional Work Program

Joseph H. Daly, PT, MA, MHS

A transitional work program (TWP) uses a continuum of proactive and reactive interventions to identify the targeted return to work (RTW) job and/or to identify productive alternative jobs that can be assimilated to maximize the safe work capacities of a worker whose ability to perform their job competitively and safely has been temporarily compromised. A transitional work program 'transitions' the worker to full duty through the implementation of timely progressions based on TWP performance.

## HISTORICAL PERSPECTIVE

The foundations for TWP were established in the 1960s and 1970s. Stover Snook, PhD, working at Liberty Mutual Insurance Co., used a laboratory environment to simulate work conditions. His staff documented the physical demands necessary for work capacities such as lifting, pushing, and pulling. This research data later became the basis for work capacity testing protocols and methods-time measurement standards as well as the database for the manual material handling guidelines for the National Institute of Occupational Safety and Health (NIOSH).

The federal Mental Retardation and Developmentally Disabled programs used assistive and/or supportive work in their state-funded sheltered workshops. The sheltered workshops assessed physical and social abilities to enhance job placement. Rehabilitation and adaptive engineers were used to make assistive devices or to suggest job modifications.

W. Fordyce and J. Bonica, PhD Clinical Psychologists, pioneered the multidisciplinary team approach to chronic pain as well as the concept of rewarding positive behavior and extinguishing negative behavior to improve functional abilities that included working. They stressed the importance of individual responsibility for goal attainment.

The theoretical framework and the working model for TWP were established in the 1980s. The Model of Human Occupation (MOHO) identified factors that inter-relate to determine a worker's success or failure in relationship to work-

related strengths and weaknesses. These factors are volition—thoughts and feelings pertaining to work abilities and satisfaction; habituation—processes that maintain a pattern and routine in work life; performance—innate capacities of the mind-brain-body which determine skilled performance on the job; and environment—spaces, objects, occupations and social groups. The Worker Role Interview (WRI) is based on MOHO and provides a framework for systematically analyzing these factors, determining how they relate to work issues, and incorporating them in treatment action plans.

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A transitional work program uses a continuum of proactive and reactive interventions to identify the targeted return to work job and/or to identify productive alternative jobs that can be assimilated to maximize the safe work capacities of a worker whose ability to perform their job competitively and safely has been temporarily compromised.

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Work hardening programs used the 'sports medicine' approach to treatment. Functional gains and graded/progressive performance were incorporated in a multidisciplinary clinical environment to address RTW issues. The Commission on Accreditation of Rehabilitation Facilities established standards for work hardening programs and continues to accredit them as Comprehensive Occupational Rehabilitation Programs.

## PHILOSOPHICAL PERSPECTIVE

The employer and the TWP provider must have a clear understanding of the TWP process so fundamental concepts can be incorporated in the implementation of the TWP. Ownership in the TWP process must be established by all team members. Each team member must take responsibility for their actions. Resource-

es, information, education, and a clear path to decision-making authority must be available in order to accomplish mutual goals. The TWP is organized to emphasize the needs of the worker and to maximize their participation. Therefore TWP services provided at the work-site are designed to improve continuity of care, quality of care, and operational efficiency. Cross-training to produce multiskilled TWP providers and a decentralization/re-deployment of TWP provider services is inherent. The continuum of long-term TWP services is ensured through partnerships. All team members must respect each other's contributions and fulfill all ownership obligations. Team member interaction should be nonadversarial. Negotiation is an integral part of TWP. Coworkers must accept a TWP worker in production, supervisors must decide on the job assignment, and employers must establish eligibility criteria, often within the framework of a union contract. Production is paramount to the employer. The TWP providers need to factor this into account when assessing worker fit into the production schedule. The short- and the long-term impact on quotas, quality, and production processes as well as the effect on the clinical status of the worker must be considered.

## TWP OBJECTIVES

A comprehensive TWP is well planned and involves all of the available resources of the employer and of the provider. It provides organization, structure, and accountability to the RTW process. The TWP conveys the corporate philosophy regarding RTW issues and provides a clear vision and the expectations of the RTW process. It reorganizes the employer's and the worker's responsibilities so that a maximization of the worker's safe work capacities can be achieved, allowing the worker to contribute to production competitiveness. The TWP provides case resolution within the medico-legal system using the multidisciplinary team approach. Closure is important and all goals should be met or redirected in a defined time frame. The emphasis of the

TWP is on safe and long-term productive RTW and should not be seen as a 'quick fix' for RTW issues. The TWP prevents an impairment (a medical condition that results in a quantifiable loss) from becoming a disability (loss of capacity to engage in gainful employment).

### CLINICAL PERSPECTIVE

As a physical therapist implementing a TWP, it is important to have the appropriate clinical background. Clinical expertise in orthopaedics, chronic pain management, and in the sports medicine approach to RTW issues is fundamental. Because the TWP is provided in an industrial environment, certification in CPR and universal first aid is advised. The *Guide to Physical Therapist Practice* describes the elements of generally accepted physical therapist practice, defines standardized terminology, and delineates preferred practice patterns. Familiarity with the Orthopaedic Section's Occupational Health Special Interest Group *Guidelines for Legal and Risk Management and Injury Prevention* is advised. Best practices can be researched through the APTA's Hooked on Evidence project that allows members to post summaries of clinical studies with outcome data from peer-reviewed articles on an online database. The use of scientific basis methods (systemized knowledge derived from observation, study, or the collection of information that is used for making RTW decisions), critical pathways (optimal sequencing and timing of interventions that are developed by a multidisciplinary team and are designed to reduce delays and duplications of services and to streamline resource use) and algorithms (standards for appropriate care and decision-making based on research, expert opinion and varying practice environments), allows for the collection of functional outcomes (standardized tests or functional tools that relate pain, strength, RTW issues, etc to a quantifiable scale) to establish evidence-based TWP protocols.

### INDUSTRIAL PERSPECTIVE

Not as familiar to the physical therapist is the industrial expertise necessary for credibility in the TWP. The 'out of clinic' experience mandates exposure to production processes, personal protective equipment, tools/machines, work shifts, and federal/state/union workplace

regulations and policies (eg, Family Medical Leave Act, Occupational Safety and Health Administration (OSHA), Bureau of Workers' Compensation). Journals that can be reviewed for specific industrial information include *Ergonomics*, *Human Factors*, *Work Study*, and the *International Journal of Ergonomics*. The TWP physical therapist must have a working knowledge of 2 federal enactment's, OSHA Ergonomic Guidelines and the Americans with Disabilities Act (ADA). In 2002 OSHA is developing a comprehensive ergonomics plan designed to reduce ergonomic injuries through the development of industry-specific voluntary guidelines, enforcement measures, workplace outreach, and research. The nursing home industry will be one of the first industries to be involved. Also this year, the ambiguities of the ADA are being addressed by the Supreme Court to make the law more workable and practical. Decisions in 2002 have included that a condition may not be disabling unless it keeps one from performing tasks of importance to most people's daily lives, that workplace seniority systems can not be circumvented by disabled workers in order to get suitable jobs, and that a company does not have to place a disabled worker in a job that it believes will jeopardize the worker's health or safety.

### IMPLEMENTING A TWP

The TWP modifies physical therapy documentation such as initial/discharge reports, progress reports and exercise programs, adding to them TWP-specific information. The TWP also includes documentation that provides information regarding the worker's abilities, attitude, and behavior. These are the RTW Forcefield Analysis (or similar tool), Functional Capacity Evaluation (FCE), Job Demands Analysis (JDA), Worker Profile, and Work Log.

*The RTW Forcefield Analysis*—The RTW research recognizes that the process is multivariate. The TWP must assess the nonphysical and psychosocial factors such as satisfaction, depression, hysterical personality, aging, dependent/immature personality, substance abuse, secondary gains, sociopathy, learned helplessness, fear-avoidance, motivation, locus-of-control, life stressors, and self-depreciation for successful RTW closure. This can be accomplished with the use

of assessment tools such as the Modified Work Appar, RTW Forcefield Analysis, WRI, Behavioral Health Inventory, North American Spine Society's Outcome Questionnaire, or Oswestry/Modified Oswestry Questionnaire. The RTW Forcefield Analysis asks the worker to respond to a series of questions in the areas of medical management, symptom management, emotional status, financial status, job satisfaction, system conflict, secondary gains, chemical dependency, compliance, and confidence levels. The worker's responses are weighted and assigned positive or negative forcefields. The forcefields are then assigned to the appropriate team member so they can be incorporated into the TWP as either a strength or a weakness for RTW. Interventions for TWPs for nonphysical and psychosocial factors focus on stress management, learned behavioral skills such as assertiveness, rational/emotive therapy, and pain/crisis management.

*Functional Capacity Evaluation (FCE)*—The FCE is an objective measurement of the worker's strength, endurance, positional tolerance, kinesio-physical tolerance, and physiological status. The FCE documents the worker's capacity to perform competitive work through an assessment of whole body motions, safe work practices, kinesio-physical responses, and work behavior responses. In TWP, the FCE is used to assess the match between the worker's capabilities and the essential functions of a specific job. The FCE's performed at the work site can be used during the TWP to update the worker's competitive physical capacities so adjustments in their work performance levels can be made as the worker progresses towards full duty.

*Job Demands Analysis (JDA)*—The JDA collects information from the employer, the worker and the worksite regarding the targeted job in the TWP. Information is compiled regarding essential/non-essential functions, reasonable accommodations, work schedules, work postures/methods, physical demands (eg, weight, frequency, and work levels), training/certification, equipment/vehicles/tools, environment, vision and hearing, temperament, and work station design. In TWP the JDA is used to make the initial functional match of the worker to the job or to specific components of the job and to assess and implement ergonomic modifications. Throughout the TWP, the JDA is

used to direct job placement as work performance levels improve and/or resolve.

**Worker Profile**—The Worker Profile integrates information from the initial report, the FCE, the JDA, the RTW Forcefield Analysis (or similar tool), and the physician to establish the TWP entry level of work performance (ie, job assignments). These are negotiated with the supervisor. The Worker Profile is updated throughout the TWP to reflect the changes in strength, endurance, and safe work practices and job assignment.

**Work Log**—The Work Log collects information regarding pain levels/location, work performance/tolerance, safe work practices, and job assignments. It is completed daily by the worker throughout the TWP. The information obtained through the Work Log is used for progress reports to the various TWP team members and to direct TWP progression.

A successful TWP incorporates goals and action plans identified by the RTW Forcefield Analysis (or similar tool) so that a realistic direction for TWP resolution can be achieved. The TWP team assigns a program manager to facilitate TWP action plans. The program manager oversees the implementation, modification and monitoring of the action plans throughout the TWP.

### PROGRAM EVALUATION

To establish the effectiveness of the TWP, outcome-based objective data is collected. Sources for the collection of data include goal sheets (pre and post ratings), work logs (tolerances, pain levels, performance levels), satisfaction questionnaires (employer, physician, worker, case manager, supervisor), program management reports (action plans), OSHA 300 logs, Workers' Compensation billing records, medical/health records, and discharge summaries (case resolution, case velocity, RTW Forcefield Analysis).

Outcome-based objective data to be collected includes but is not limited to lost time days, restricted days, productivity levels, RTW rate, number of claims, incident rates, total recordable injuries, severity rates, medical costs, reinjury rates, legal costs, and nonphysical psychosocial tool scores. This multivariate data can then be analyzed to determine such factors as cost-effectiveness, worker retention, case velocity, programmatic content, and TWP critical pathways/algorithms.

### TWP BENEFITS

The benefits of a TWP are program specific, but all TWPs should realize most of the following benefits if the program is implemented appropriately. A TWP facilitates the employer's management of the work environment by maximizing internal policy and procedures, thus meeting ownership and partnership obligations. Corporate competitiveness is enhanced due to the improvement to the bottom line and the availability of productive workers. A TWP promotes early and/or proactive interventions emphasizing the determination of a specific diagnosis with concurrent specific treatment within 4 to 6 weeks of date of injury. This results in appropriate care by the appropriate health care provider at the appropriate time. A TWP improves the management of external resources by providing a common ground for addressing RTW issues and an awareness of availability of these resources (networking). A TWP improves workforce morale and protects worker employability through ADA and OSHA Ergonomic Guidelines compliance. It promotes labor-management collaboration in the RTW process, thereby reducing the adversarial nature of the work injury. Finally a TWP promotes worker locus-of-control in the RTW process by identifying the strengths and weaknesses for RTW and incorporating the worker as an active TWP team member to resolve any issues.

### TWP OUTCOMES

The following outcome-based data was collected from 2 central-Ohio based companies that have an evidence-based TWP. Each program has specific TWP policies and procedures, a long-standing work-site physical therapist that is present 1 to 3 times per week, a relationship with an occupational medicine facility, a network of consultant/treatment health care providers, an external case manager, and the support of management to implement proactive interventions.

<u>Steel Foundry</u> Columbus, Oh			
	<u>1999</u>	<u>2000</u>	<u>% Change</u>
Incident Rates	24.02	21.36	-11%
Total Recordable Injuries	340	246	-28%
Severity Rates	970.09	682.36	-29%
Total Lost and Restricted			
Work Days	13,730	7,864	-43%
Total Lost Work Days	11,706	5,948	-49%
Medical Costs		Proprietary Information	-38%

### Honda Supplier Canal Winchester, Oh

	<u>1991</u>	<u>1992</u>	<u>1993</u>
Carpal Tunnel Disability Costs	\$87,605	\$59,570	\$44,678

### WORK STRATEGIES 2010

The workforce of the new millennium will continue to change. The Bureau of Labor Statistics describes a workforce that is currently 55% female (a large proportion single mothers), multi-ethnic, and poorly educated. The current business environment responds to a service-oriented economy that continually expands and contracts. The end result is a decreasing number of skilled trade workers and an increasing utilization of temporary/leased workers. In many sectors of business (eg, steel industry, car manufacturing), the workforce is aging. The seniority system has its advantages but it also brings with it the normal physiologic changes associated with the aging process and the subsequent co-morbidity's associated with working lifestyles. In other business sectors (eg, technology) there is evidence of a new work ethic. One that values a balance and synergy between work and family, considers work as a 'noble cause,' strives for personal growth and development, builds a partnership and trusting relationship with the employer, and fosters a community spirit at work.

The challenge for a TWP is to devise a new work strategies paradigm that will benefit the evolving workforce. There are many data sources available to construct and validate a new paradigm. The federal government has specific initiatives to address the work environment. Healthy People 2010 has been pursued over the past 2 decades. Healthy People 2010 is grounded in science, built through public consensus and designed to measure progress. Its goals are to increase the quality and years of healthy life and to eliminate health disparities. These goals are supported by specific objectives in 28 Focus Areas. Focus Area 20 is Occupational Safety and Health. The goal of Focus Area 20 is to promote the health and safety of people at work through prevention and early intervention objectives. There are 11 specific objectives in Focus Area 20, which include 20-2: reducing work-related injuries resulting in medical treatment; lost time from work or injury; and illness cases involving days away from work due



to overexertion or repetitive motion. The OSHA Ergonomic Guidelines will continue to be formulated through consensus among labor, government, business, health, and legal representatives. O\*NET is being developed as a replacement for the Dictionary of Occupational Titles. O\*NET classifies physical demands through subjective assessment and may be unsuitable for the purposes of rehabilitation and disability determination (eg, FCE, JDA). Legal issues such as the recent ADA rulings and the use of genetic testing (eg, sickle cell anemia, carpal tunnel) will influence TWP as well as the administration of post-offer/essential functional testing.

Evidence-based disability guidelines are increasingly being used to facilitate and validate the RTW process. The 4 major guidelines are the *Official Disability Guidelines* (Work Loss Data Institute), the *Medical Disability Advisor* (Reed Group), the *Health Management Guidelines* (Milliman and Robertson), and the *Occupational Medicine Practice Guideline* (American College of Occupational and Environmental Medicine). The new TWP work strategies paradigm dictates that disability guidelines are to be based on objective data and take into account all of the factors affecting RTW (eg, type of intervention, severity, type of job).

Research for occupational safety and health is being pursued by NIOSH and by the American Physical Therapy Association's Research arm, the Foundation for Physical Therapy. The National Occupational Research Agenda was established by NIOSH in 1996 targeting 21 areas (eg, low back disorders; musculoskeletal disorders of the upper extremity; intervention effectiveness research; and illness and injury surveillance research methods) for specific research priority. Research in physical therapy has established evidence-based treatment protocols for modalities such as ultrasound and electrical stimulation. A TWP will need to incorporate as much information as possible from research to effectively resolve RTW issues.

Education and certification requirements will effect the TWP. The emergence of the Doctor of Physical Therapy and the board certifications by the American Board of Physical Therapy Specialties in areas such as orthopaedics and neurology ensures that a more quali-

fied TWP provider will be available, especially in states that have direct access. Other professional certifications that enhance TWP provider expertise include ergonomics (Board of Certification in Professional Ergonomics), FCE (various systems), and OSHA (coursework).

The Behavior-based Safety Coaching process uses a systematic approach to develop and sustain safe work practices. The TWP process can implement this model by identifying at risk behaviors, writing observable behavior definitions, installing interventions, monitoring performance, and providing immediate feedback. The benefits of using a behavior-based approach to TWP include increasing the worker's involvement, allowing the worker locus-of-control, promoting team work and partnering, improving communication, reinforcing desired behavior, changing undesirable behavior, and maximizing TWP efficiency.

#### SUMMARY

The goal of TWP is to conserve workforce productivity and health in order to promote corporate competitiveness. To accomplish this, implementing evidence-based interventions and protocols, using research and professional resources, and a grounding in medical-legal-business issues will ensure the delivery of validated and effective work strategies.

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# Differential Diagnosis of Foot and Heel Pain and Treatment in Runners

Steven W. Forbush, PT, MS

## INTRODUCTION

During the course of training for any event or even sometimes in the process of just conditioning, a runner often starts to experience foot and ankle problems. This would be expected, as typical runners putting in 50 training miles per week may have 3,000,000 foot contacts per year.<sup>1</sup> Some of the time, these problems are just from over training, sock folds, shoes that don't fit properly, or generally from too much time on the feet on a particular day. They will generally respond well to rest and reducing activities for a few days. At other times, these problems don't quickly resolve with rest, adaptation, or with changes in equipment. They may need other intervention.

The first stop for most of these runners is the local family practice physician or the orthopaedic/sports medicine physician's office. Doctors are accustomed to seeing runner's foot and ankle problems and will quickly look for all of the serious problems that may be present—fractures, soft tissue lesions, and other anomalies—by using the diagnostic testing available in most modern clinics. More often they will deem the problem less severe and will either refer the runner to another practitioner (sports medicine specialist or podiatrist) or will send the runner home with a minor diagnosis and a set of home exercises. The most common diagnoses given to these runners in Gainesville, Florida are either plantar fasciitis or heel spurs. Heel spurs occur in up to 25% of the population.<sup>2</sup> Treatment rendered in the physician's office may involve invasive injections or expensive orthotics. However, both of these diagnoses have problems when challenged. I hope to give some general information on why there are questions concerning each of these diagnoses, impart some alternate theories as to what else might be happening in the runner's foot, and give some suggestions my clinic uses to keep a runner from having some of these problems.

## THE CLINIC

I have had the unique opportunity to treat multiple foot pain problems with

medical and podiatric physician diagnoses of plantar fasciitis and heel spurs. During the course of a normal year our clinic may receive as many as 150 referrals with these diagnoses from about 3 or 4 practitioners in our area. Our clinic has been the source of information on rehabilitation of plantar fasciitis and has been used by our most active podiatric referral source for 2 major research activities due to our success with treating these conditions. We spend much of our time differentiating between the many choices of diagnoses that may be confused with heel spurs or plantar fasciitis and this allows us to spend our time working specifically on the proper dysfunction and to be more successful in treatment. Many of the referrals are for runners that participate in 2 of the major track organizations in our city. For the rest of this article, I will try to explain the thought process, differential diagnosis, and treatment we use so effectively in our clinic.

## THE DIAGNOSIS OF PLANTAR FASCIITIS

The diagnosis of plantar fasciitis has been the most popular reason for foot pain in both the active and the sedentary individual for years, not only in the literature but in orthopaedic physician and podiatric offices around the states.<sup>3</sup> We know the plantar fascia is a dense band of connective tissue that contains the tissues of the sole of the foot.<sup>2</sup> It is not an actively contracting tissue, is minimally plastic, and has a blood supply primarily from the connective tissue and vessels feeding the muscular tissues beneath the fascia.<sup>2</sup> All of this would make the fascia unlikely to experience a tear. The most common symptom of plantar fasciitis, if applied properly, is a burning of the superficial aspect of the sole of the foot or at the plantar attachment on the central calcaneus.<sup>4</sup> Acute fascial tears are found in athletes and usually are described as severe burning in the central arch area with diminished ability to weight bear on the foot or dorsiflex the toes in normal or athletic activities. The most common symptom of a runner with heel pain is of a sharp pain or bruised

feeling in the area of the medial heel on the plantar surface.<sup>4</sup> Obviously these symptoms are in conflict with each other. This diagnosis should be rarely found in runners who use a solid and firm running surface when exercising or training and who do not exceed the normal progression of increasing mileage within their training schedule.

## THE HEEL SPUR

The diagnosis of heel spur is even more problematic. Research has shown that 25% of normal, pain free individuals in the United States have a heel spur on one or both feet.<sup>2</sup> In 2 very busy podiatric offices here in Gainesville, heel spurs are found with X-rays as often on the nonpainful foot as on the painful foot.<sup>5</sup> The question becomes, when does the heel spur actually cause the pain or is it a normal wear and tear change in the foot? Archeologists have known for years that bones with more ridges and osteophytes belong to individuals that are more active and are under more loads. In fact, one of the prime determinants in designating the social context of a set of remains is the bone's size, shape, and extent of ridges, as royalty had less dense and ridged bones while heavy laborers were found to have the opposite.

## DIFFERENTIAL DIAGNOSIS OF THE FOOT PAIN

In my practice, as an orthopaedic outpatient based physical therapist, after differentially evaluating the foot in detail, I find most of these pain problems to not fall in either of these diagnostic categories. The problems diagnosed in most of these patients instead include tendonitis, soft tissue lesions related to weakness of the controllers of the foot, diminished length of the tissues around the foot and ankle, or neurological irritations.

The therapist needs to differentiate between heel spurs, plantar fascial irritation, tendonitis of the flexor hallucis longus, the abductor hallucis, or the posterior tibialis, lumbar radiculopathy, or neurological irritation. Each of these diagnoses can cause pain in the heel area

of the foot. There are definitive differences that will be present in each of these diagnostic problems.

### **Diagnosis and Treatment of the Heel Spur**

The heel spur, if causing pain, should have the pain localized in the heel area and should correlate with chronic pain versus acute irritation (after all, the spur didn't grow overnight). The central focus of the tenderness should be over the central calcaneus on the plantar aspect of the foot. The pain is obviously worse with weight bearing or increased heel contact. Ultrasound, phonophoresis, and iontophoresis have been suggested as tools that will reduce the size of spurs, but no research has demonstrated any significant effect from these treatments used as a primary tool. Treatment should emphasize stretching or strengthening, as appropriate, of the tissues attached to the plantar calcaneus (flexor hallucis brevis, flexor digitorum brevis, or quadratus plantae). The therapist also should consider padding the area of bony contact with the ground if the bone is tender and sensitive to weight bearing.

### **Diagnosis and Treatment of Plantar Fascial Irritation**

With plantar fascial irritation, tenderness and irritation should be in more areas than just the heel. If just in the heel, the pain should be localized to the attachment of the fascia on the heel. The tenderness should be rather superficial as the tissue resides just below the skin of the plantar foot. As already mentioned the fascia is a heavy noncontractile support structure and is not very plastic under stretch. Treatment should concentrate on stretching and enhancing circulation to improve healing potential.

### **Diagnosis and Treatment of Tendon Problems**

The differential diagnosis is only as good as the evaluation of the foot and ankle. Another area to differentiate in the process of evaluation and determination of a physical therapy diagnosis is the tendon structures. There should be no argument that there are many support tendons in the foot area and all need to be strong and long to take the stresses that the thousands of foot contacts impart while running, or in other active or athletic activities. If the foot were tired,

tight, or overworked, these tendons would be expected to have minor tears and other injuries. It is important to have a differential diagnosis of which tissues have been injured in order to better treat the problem that has occurred. The therapist needs to fully evaluate the flexor hallucis longus, the abductor hallucis, the posterior tibialis, and the flexor hallucis brevis. Each tendon needs to be evaluated for length and strength limitations. The fascia should also be evaluated and checked for length disorders, as strength is not an issue with a noncontractile tissue. Treatment should be specific to the tissues with dysfunction and emphasize returning the tissue to full function and control through all activities. Localized symptoms over the tendon would be present in a case of tendonitis, and the tendon can be traced from the muscular connection to the bony attachment. The muscle might test weak or tight. The flexor hallucis longus is commonly tender over on the plantar surface of the sustentaculum tali, the point of greatest angulation and stress of the tendon. This is one of the tendons that would be tender over the common tendon area of the medial heel, with the other being the abductor hallucis. The posterior tibialis is usually tender in the medial ankle retinaculum, over the navicular, or at the attachments of the tendon over the tarsals and metatarsals deep in the plantar foot. Tendons usually heal slowly due to less than dynamic circulation in the tissue, but respond best to moderate stretching, moderate strengthening, and constant motion and activity. Activity of the foot and toes throughout the day, while on the feet and at rest, helps to improve blood supply and promote healing.

### **Diagnosis and Treatment of Lumbar Pain Referred to the Foot**

Pain described in the foot without the presence of any localized tenderness might be referred from the lumbar region. Lumbar radiculopathy as a cause of foot pain is a common diagnosis found in our clinic. There are no tender points in the foot or ankle, the function of the foot and ankle are near normal in all areas, and positional change of the lumbar spine such as flexing the lumbar spine, reduces the pain in the foot and ankle. The pain usually resides in areas associated with a myotome or a der-

matome. Evaluation of the lumbar area usually reveals segmental lumbar dysfunction like segmental lumbar tenderness, facilitation of the lumbar musculature, and motion dysfunction, and treatment is centered on the dysfunctions in this area.

### **Diagnosis and Treatment of Neural Irritation**

The most common reason differentially found in the patients in our clinic, for the complaint of foot and heel pain is neural irritation. This irritation originates from many different locations. The tibial nerve can be irritated at the tarsal tunnel, the posterior medial calf tissues where the tibial nerve comes through the soleus tissues, in the proximal gastrocnemius, in the sciatic notch due to piriformis irritation, or from lumbar root irritation. Differentiation can be done by following the neural channel from the medial foot and heel up the ankle and leg to the lumbar area. I find many podiatric referrals, with the doctor's diagnosis of heel spurs and plantar fasciitis, are actually found to be neural irritation throughout the entire sciatic and tibial nerve channels to the arch of the foot. It is also common to find tenderness between the rays of the distal foot such as with Morton's neuroma. However, the tenderness is between all of the rays, which would be uncommon for neuromas. Weakness might occur in multiple tissues depending on the extent of neurological irritation. Treatment would be dependent on the physical therapist diagnosis of the functional problems associated with the spine and pelvis, the muscular problems in the neural track, or the problems associated with the tarsal tunnel. Soft tissue mobilization, neural tension techniques, lumbar spine stretching, mobilization, strengthening, or stabilization, and ankle stabilization or stretching for the tarsal tunnel are all used in my clinic depending on the associated problem.

### **Treatment for Runners**

Treatment would vary depending on the diagnosis. In the runner population, all runners should learn to make their foot more active during the day. This activity should include toe scrunches in and out of the shoes with emphasis on the big toe to activate the flexor hallucis longus, and heel-to-toe rocking while

standing and sitting. This makes the foot much more active and increases general blood supply during the day. The runner should also intermittently stretch the forefoot and Achilles tendon against objects in their environment throughout the workday. This allows better general flexibility and the ability to adapt to environmental stresses more readily while in training. Finally, the runner should be making the great toe push down into the floor and the arch lift up with the same action. The person should also make a concerted effort to push off while walking. All of these activities cause the foot to respond better to stresses and therefore be more ready for running activities, no matter where they are placed in the day. Therapeutic intervention in the clinic should work on the things the patient cannot perform on their own. Modalities, deep tissue work, isolated stretching, and functional muscle and gait training should be a great portion of the sessions. In my clinic, we use orthotics as a

temporary splint for a very acute foot or as a permanent splint only in feet with severe and non-rehabable dysfunction. After all, we do not usually use permanent splints on any other joint or soft tissue problem in other areas of the body, so why do we so readily use a splint for long periods of time in the foot and ankle.

### CONCLUSIONS

There are many different dysfunctions and problems that can relate to pain at the plantar foot and heel. When observing any population, including runners, a differential diagnosis of the condition must be rendered by the physical therapist. This is important, even if there is a specific diagnosis already given by the physician. As mentioned in this article, most of the diagnoses brought by patients to our clinic from the referring physician are inconsistent with the eventual physical therapist diagnosis. Treatment must be consistent with the proper diagnosis and dysfunction

whether rendered by the physician or by the physical therapist. Whether the problem exists in runners, with participants in other sports, or with inactive individuals, treatment should be consistent for the diagnosis or dysfunction. The anatomical and physiological properties of the foot do not differ, just the amount and types of stresses endured by the individuals.

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## Case Report

# Work Site Analysis at Re-Winder #47: Description of Industrial Ergonomic Analysis for the Prevention of Repetitive Trauma Among Employees

H. Donn de Yampert, PT, MEd, GCS

This case report was completed as required course work for Clinical Research II at Creighton University in March 2002.

### HISTORY/INTRODUCTION: BUILDING A CASE FOR A REAL PROBLEM

Nearly 1,000,000 people each year report taking time away from work to treat and recover from musculoskeletal pain or loss of function due to overexertion or repetitive motion either in the low back or upper extremities.<sup>1</sup> Although there is risk of long-term disability in both types of disorders, the majority of individuals return to work within 31 days.<sup>2</sup> The Worker's Compensation System provides for the care of these injuries/disorders which could amount to an estimated \$13 to \$20 billion annually depending on whose figures one cites. However, in order to determine the total economic burden, indirect costs related to such factors as lost wages, lost productivity, and lost tax revenues must be added to the cost of compensation claims, leading estimates as high as \$45 to \$54 billion annually for musculoskeletal disorders reported as work-related.<sup>2</sup>

Several studies suggest that many disorders that could be attributed to work are not reported and therefore are not counted in any existing databases.<sup>2</sup> According to Praemer, Furner, and Rice, data collected in 1995 show that when non-occupationally related disorders are included, the economic burden is as high as \$215 billion.<sup>3</sup> In the workplace, the multiplicity of factors that may affect reported cases—including work procedures, equipment, and environment; organizational and social factors; physical and psychological characteristics of the individual; and workplace reporting practices—has led to an ongoing debate about the causes, nature, severity, and degrees of work-relatedness.<sup>2</sup> In response, the National Institute for Occupational Safety and Health (NIOSH)

published an extensive review of the literature describing the epidemiology of musculoskeletal disorders of the back and upper extremities.<sup>4</sup> This review of the literature summarized the results of studies examining 'causal links' between physical tasks in the workplace and musculoskeletal disorders. There also was evaluation of the psychosocial factors (workload, social support, job control, outside activity) included in this summary. A strong case was made suggesting that a combination of repetitive motion, force, and posture on elbow and hand/wrist disorders were causal factors.

The National Academy of Sciences/National Research Council reviewed the literature on effects of a variety of 'potential' contributing factors and interactions. They reported that although the strength of the evidence varied, some broad conclusions could be drawn.<sup>5</sup> Other researchers interpret the research differently and have stated that there is insufficient evidence to pinpoint a causal relationship between work tasks and musculoskeletal disorder occurrence.<sup>6,7</sup> Their supporting argument states methodology used in most of the literature is inappropriate, resulting in skewed data. The National Academy of Sciences/National Research Council reviewed the same literature and agreed with this contention calling for sound conclusions from valid data and developed rigorous criteria evaluating the research literature. A panel on Musculoskeletal Disorders and the Workplace was created by the National Research Council (NRC) and the Institute of Medicine (IOM) in January 1999 to conduct a 2-year study of the contribution of workplace physical and psychosocial factors to the occurrence of musculoskeletal disorders of the low back and upper extremities and to examine the effectiveness of various prevention strategies. The panel was composed of 19 experts representing the fields of biomechanics, epidemiology, hand

surgery, human factors engineering, internal medicine, nursing, occupational medicine, orthopaedics, physical medicine and rehabilitation, physiology, psychology, quantitative analysis, and rheumatology. The impetus for the study was a request from Congress to examine the causation, diagnosis, and prevention of musculoskeletal disorders (House Report 105-635). This panel performed 12 comprehensive scientific literature reviews with results published in book form entitled *Musculoskeletal Disorders and the Workplace: Low Back and Upper Extremities* (ISBN 0-309-07284-0 published by National Academy Press, 2001).

In the profession of physical therapy, we have 2 primary journals noted in Index Medicus. Within these two journals there are limited research studies and case studies related to onsite physical therapy within the confines of corporate America on a proactive basis. This case report is an attempt to share an onsite industrial analysis and problem solving intervention by a physical therapist. Both physical and occupational therapists are highly educated in examination, diagnosis, prognosis, intervention, and outcomes.<sup>8</sup> It is the hope that both physical therapists and occupational therapists will be more comfortable leaving the confines of traditional health care and proactively providing for the needs of workers and corporate America while still participating within the health care team. The aging worker who has sustained decades of repetitive trauma readily demonstrates symptoms so frequently that his primary care provider routinely will state the cause is aging and prescribe long-term medication use. The surgeon is content with providing procedures for carpal tunnel release, acromioplasty, laminectomy, total knee replacement, and coronary arterial bypasses. The orthotist provides orthotics while the physical therapist provides modalities and exercise. All of these professionals

then send the patient/client back to their regular occupational arenas to develop exacerbations of the original problem and start the reactive health care cycle all over again.

This physical therapist provides onsite physical therapy service needs for a large paper company. The paper company consists of 3 mills and 1500 employees. Each mill has re-winder operations that prepare 2500 to 5200 pound rolls of paper for shipment in railroad cars and tractor trailers for delivery to their customers. The employees working in re-winder operations have presented with multiple physical complaints. These physical complaints are primarily located at the wrist, elbow, and shoulders. One such employee recently was referred to me. The client had received an orthopaedic consultation and had been diagnosed with shoulder impingement and with acromioclavicular joint osteophytes. His physician told him that if he did not change the methodology of his work activities that he would have increased symptoms and surgery would be the only alternative at that time. The client contacted his union safety representative and they examined the work procedures in his area and requested a work site analysis by a physical therapist.

Chaffin, Anderson, and Martin<sup>9</sup> have indicated that there are 3 different approaches to identifying potential or existing musculoskeletal problems. The first approach relies on the requirement in most industrialized countries that detailed reports be kept for work-related or otherwise serious injury. A second approach, sometimes used when medical reports are not very complete or when fewer numbers of workers are involved in performing a job, is to initiate active surveillance. A second type of data under this surveillance heading is the use of discomfort surveys (passive surveillance) with the purpose of systematically documenting the type and prevalence of musculoskeletal problems in a work group. The third approach is doing a literature search regarding identification of potential musculoskeletal problems for jobs in the planning stages.<sup>9</sup> There is a disparity of information from the traditional reporting sources of the accident information form (AIF) which is transcribed into the occupational injury reports (OIR) on a monthly and quarterly basis and submitted to the Occupational Safety

and Health Administration (OSHA). The Standardized Nordic Questionnaire for Analysis of Musculoskeletal Symptoms by Kuorinka et al was selected for use.<sup>10</sup> The 'pain survey' was discussed as a basis of information and to make the employees aware of the nature and extent of their pain complaints. Both company administration and union labor agreed to allow and support the use of the pain survey.

Employee demographics for the paper mill indicated an average age of 48 years (predominately men and were employed for at least 20 years). Some of the employees have been working within the mill for approximately 40 years. Mill #4 is the newest of the 3 mills. The union contract allows the senior workers to 'bump' the younger workers to move to whatever area of the mill they desire. Mill #4 has the highest amount of pain complaints of the 3 mills. Mill #1 has the youngest workers and is the oldest in regards to technology, lighting, and appearance.

On June 1, 2001, the Kuorinka discomfort survey was distributed to the coater, super, and winder areas of mills 1, 3, and 4. There were 46 respondents from an assigned worker pool of 100. Focus of the survey was: to increase awareness of work-related physical complaints; to create constructive criticism dialogue; and to implement changes in work habits, procedures, and technology. In mill #4, the following physical complaint areas were noted from the survey: 11/46 right shoulder (23.9%), 4/46 left shoulder (8.6%), 17/46 both shoulders concurrently (36.9%); 5/46 right elbow, 3/46 left elbow (6.5%), and 9/46 both elbows (19.5%); wrists/hands right 4/46 (8.6%), left 2/46 (4.3%), both wrists/hands 17/46 (36.9%); upper back 10/46 (21.7%); lower back 27/46 (58.6%).

A union safety representative from mill #4 requested that the physical therapist schedule time to perform a work-site analysis and discuss work-related activities with the area employees of re-winder #47. The re-winder #47 area employees indicated verbal agreement to having the physical therapist perform on-site work analysis, to participate in the analysis, and to be photographed in the performance of work-related activities. A work-site analysis was performed on June 13, 2001 from 1100 to 1300 hours. There were 3 helpers and 1 operator in attendance. Equipment used for the work-site analy-

sis included a: digital camera, digital movie camera, force dynamometer, and measuring tape. Procedures viewed included: roll changing and setup, slabbing, core transport, plug box transport, plug fixation within core, and core rack movement. Procedures practiced but were not witnessed included shafting 2 rolls of paper and core removal from roll paper.

## DEFINITIONS

**Re-winder Operator:** tends machine that winds paper from one roll to another to form compact rolls of specified footage or diameter prior to cutting; threads end of parent roll feeding mechanism of machine and adjusts friction brake by hand to maintain tension on paper; slides rewind cores on shafts and starts machine, using hand tools; removes wound roll from shaft and places it on conveyor; may cut defects from paper and splice cut ends together, using tape. Strength rating is medium (lifts/carries or exerts forces) occasionally 20-50 pounds; frequently 10-25 pounds; constantly negligible weight to 10 pounds (*The Dictionary of Occupational Titles, Volume II, 4th ed, Revised 1991:585*). Mead Job Description indicates the operator initiates operation of re-winder; with the helper's assistance, completes carry-over splice of a new log and slab logs as needed; sets slitters to desired width for proper cuts; records completion of roll creation. Non-essential tasks performed are listed as: with helper's assistance, prepares log splice and initiates the removal of log via overhead crane; creates roll tickets via computer and replenishes supply as needed; changes filters and V-belts as needed; reloads winder and work with operator panel. Equipment used: computer, re-winder control panel, overhead crane, roll ticket printer, small hand tools, overhead crane, and tape. Employee must lift 37 pounds under 30 minutes, 5-25 feet; 25-500 pounds, under 30 minutes, 30 feet.

**Re-winder Helper #1:** Mead Job Description indicates the worker assists the operator with splice; calls core room to assure the cores are delivered on time; threads the winder with paper and slab remaining paper off mandrel; hammers plugs into rolls, marks and stencils them; assists the operator in taping new rolls of paper onto the core; pushes rolls onto conveyor belt and loads cores into the

drum for re-winder. The non-essential tasks performed are: keep a safe and clean working environment. Equipment used: core plugs, stamper, crayon, hammer, utility knife, tape, crow bar, and overhead crane. Employee must lift 37 pounds, one hour, 25 feet; 22 pounds, under 30 minutes, 15 feet.

**Re-winder Helper #2:** Mead Job Description indicates the worker picks up logs via overhead crane; loads the logs into the winder; takes the empty mandrel off and slabs remaining paper off mandrel; hammers plugs into rolls, marks, and stencils each individual roll; pushes rolls onto a conveyor belt; once the roll is spliced, the 2nd helper tapes the roll then carries and places it into a push cart. Non-essential tasks: keep safe and clean working environment. Employee must lift 37 pounds, 1 hour, 25 feet; 22 pounds, under 30 minutes, 10-25 feet.

## ASSESSMENT

This physical therapist performed active surveillance of 4 employees with in mill #4 at re-winder #47 performing essential features of their job on June 13, 2001, from 1100 to 1300 hours. Of particular interest were all activities that were performed at shoulder level and above on a frequent basis (activity or condition exists for 1/3 to 2/3 of the time) as these activities may lead to development of neck-shoulder pathology. To achieve this mobility, stability is sacrificed. One empirically determined specification of arm work requirements is that the hands should not have to reach frequently or be held above shoulder height for sustained periods.<sup>11</sup> Jobs that require such elevated arm activities have been shown to lead to 'degenerative tendinitis' in the biceps and supraspinatus muscles.<sup>11-16</sup>

Those activities performed with frequent repetitive gripping/pinching of cores with hands and fingers tend to cause increased pressure buildup at the carpal tunnel with resultant swelling, decreased circulation, nerve impairment, reduced grip strength, and pain/tingling in hands and fingers. In Chaffin's *Occupational Biomechanics* they state, because of the anatomy of the hand, any tool that must be forcefully squeezed should be designed with handles that avoid concentrating grip forces on a couple of fingers or in the center of the palm.<sup>11</sup> Structures in the palm and wrist

commonly affected would be the median nerve, local arteries, and synovial coverings of finger flexor tendons within the carpal tunnel. Imrhan<sup>17</sup> examined the effects of different wrist positions on maximum pinch force. The results showed that all of the deviated wrist positions reduced the observed pinch strength, with palmar flexion having the greatest effect and radial deviation having the least.<sup>18</sup> Repeated grip forces concentrated in the center of the palm also are known to cause injury of these fragile tissues and must therefore be avoided.<sup>17</sup> Frequent hammering performed with a short arc of motion will cause excessive pressure on the elbows and wrists, increasing the incidence of tennis elbow and carpal tunnel syndrome. Marshall, Mozrall, and Shealy demonstrated that the combination of wrist-forearm posture had significant effects on wrist range of motion.<sup>19</sup> Pryce studied the effects on wrist posture and maximum grip strength.<sup>20</sup> Wrist strength was most impaired when positioning in ulnar deviation and grip force was greatest in neutral positioning. The accompanying problems were noted during active surveillance and recommendations are noted below. Both labor and management were asked to pay close attention to the noted high-risk activities and suggestions for remediation. Labor and management were asked to invite the physical therapist to provide a 45-minute presentation regarding repetitive injury at one of the safety meetings held each month.

## AT RISK ACTIVITIES AND SUGGESTIONS FOR REMEDIATION

### High Risk for Acute/Repetitive Injury

- *Pushing rolls of paper by one person out of conveyor requires 95 3/4 pounds average effort.*

Use two persons to fabricate a lever to move the roll and reduce forces required. There are special roll pushing pneumatic devices available in some areas of the mill but not in mill #4, re-winder 47 area. The pneumatic device would be the best alternative.

- *Pushing/pulling core rack by one person results in an increased risk of back and shoulders problems as the rack will swivel and center of mass height is higher than the person operating, causing twisting and increased back and shoulder moments.*

Use 2 persons to manipulate the core rack together with hand placement between shoulder and hip heights.

- *Hammering core plug requires 1 to 5 impacts, due to variable core diameter; variable plug diameter; notching present/not present on cores, limited hammer swing range with increased moments on wrist, elbows and shoulders.*

Use 2 persons to spin roll and allow increased swing with hammer; quality control of core diameters; quality control of plug diameters; using the notched core theory on all cores; alternative use of straight handle or curved handle mallets as it should only take one hit with minimal to moderate force. Elimination of the core plugs from the paper roll preparation process would be an optimal change which would eliminate the need to hammer with the wrist held in a flexion and ulnar deviation for a short arc moment impact.

- *Slabbing residual paper off of mandrel is performed with inconsistent hand-knife placement techniques, inconsistent cuts with knife into paper, inconsistent coefficient of friction for feet, and employees using body momentum to drive the knife through the mandrel length.*

Knives that are appropriately sharpened are most important. Slabbing technique instruction by trainers for the new and old employees is important. Taking cuts of less than 1/2 inch would reduce the forces on the hand-wrist complex. Elimination of the slabbing practice and providing a mechanical slabbing device or an unwinder device would be best. Slabbing is performed essentially at shoulder height when a mandrel of paper is placed on the floor or above shoulder height when it is placed on racks 3-4 feet above the ground.

- *Transporting more than 1 roll of paper core at a time by hand, employees carry 2 (17-40#) to 3 (25.5-60#) per hand increasing forces on the carpal tunnel of the wrist and wrist extensors at the elbow.*

Locating core racks closer to each winder area; carry less cores at a time; use rubber palmed gloves to decrease need to grip harder via increased coefficient of friction.

- Carrying heavy and bulky plug boxes.

Use core cart to transport boxes; order core plugs in smaller boxes lessening weight and bulkiness of box for human transport.

- Climbing onto equipment during threading procedure supervised by operator; limited space to apply a ladder or step up stand.

Disallow climbing on equipment unless supported by a ladder, footstool, or harness. Build appropriate access to equipment if regular need to access the area.

#### Moderate Risk for Acute/Repetitive Injury

- Holding core in place with one hand while dies insert into the core increases opportunity for wrist, elbow, and shoulder injury.

Hold core with 2 hands and use a foot pedal to approximate dies into the core as is done in re-winder for mill #1.

- Reaching at shoulder height or above to pull paper through winder increases chance for shoulder, neck, and back injury.

Improve access to shoulder and overhead height areas with appropriate ladder, footstool, or build appropriate access to equipment when regular access is required.

- Pushing rolls of paper away from winder towards conveyor on decline increases occurrence of degenerative disc disease pathology in neck, upper back, and lower back.

Two people push to lessen forces on the spine.

#### Minimal Risk for Acute/Repetitive Injury

- Pushing/pulling core cart over even surfaces.
- Pushing/pulling broke basket over even surfaces.

#### CONCLUSION

The paper mill employees and management were given summaries of the survey, the physical therapy ergonomic assessment, and recommendations. The physical therapist was invited to present the report and recommendations to the Safety Committee Meeting consisting of union representatives, management, and administrative officials. Following the

analysis and presentations, the superintendent for mill #4 began discussions with the foremen and superintendents of mills #1 and #3 that lead ultimately to the discontinuance of hammering core plugs. The employees became more aware of the effect of their work on hand/wrist positioning and began using cut resistant Kevlar type gloves with rubber palms to increase the coefficient of friction and decrease the grip/pinch force needed for transport of cores. When the need to implant core plugs via hammering was discontinued, so was the need to transport boxes of plugs by hand. The problem of performing activities at and above shoulder height remains unchanged. Slabbing remains a significant concern but employee and management awareness of the problem has heightened. Each mill's educational trainer teaches the importance of a sharp knife and slabbing technique. Slabbing technique has become more important to the employees and management. Roll pushing has been discouraged but is allowed by the mill administration. A second survey needs to be administered to document change in pain complaints. The physical therapist has noted a dramatic change in hand and wrist complaints from the re-winder areas during clinical hours.

The plight of the aging worker in this environment to perform his daily work in an efficient and safe manner will depend on the collaboration of the employee, union representatives, professional staff, and health care personnel working together. The increased rate of technological development of recent decades has created the need to consider human factors early in the design phase and in a systematic manner. Use of scientific literature to project for material stress-strains, stabilization, and employee interface with equipment and task activities will make the biggest difference in employee health, safety, and productivity. The proactive approach and intervention by the physical therapist described above can be effectively used in the health care and industrial environments by all therapists.

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## Section Members in The News

Congratulations to Lola Rosenbaum, PT, MHS, OCS. Lola was recently elected to the position of District Director for The Physical Therapy Association of Georgia. Lola is also the current Vice President of the Orthopaedic Section.

*Congratulations Lola!*



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# Health Volunteers Overseas

Health Volunteers Overseas (HVO) was founded in 1986 to improve global health through education. Since then, over 3,800 health professionals have donated their time and expertise to provide training and education to local care providers in the least developed nations of the world. In the past 16 years, HVO has grown to include more than 1,900 members, 375 annual volunteers, over 50 program sites, and 10 active training divisions. More than 150 volunteers based in the United States and Canada serve on a variety of advisory committees, as program directors and as technical advisors. The HVO sponsors, 10 of the best-known professional associations in the health care arena, provide the organization with critical financial support, as well as visibility and credibility within their communities. In recent months, HVO has been recognized with a Daily Points of Light Award and with the American Society of Association Executive's AAA Award for Excellence.

Each year a growing number of health specialists volunteer at HVO program sites in Latin America and the Caribbean, Eastern Europe, Africa, and Asia. They are volunteers in the truest sense of the word—they pay their own travel and living expenses, which average \$2,000 per trip. Many also forgo income while away from their practices. Yet, one third of volunteers return annually. Volunteers are accepted in 10 specialties: anesthesia, dentistry, hand surgery, internal medicine, nurse anesthesia, nursing, oral and maxillofacial surgery, orthopaedics, pediatrics, and physical therapy.

The HVO Physical Therapy Overseas (PTO) division was established in 1995 with the generous support of the American Physical Therapy Association. Currently, 7 PTO sites are recruiting volunteers for training programs in Bhutan, El Salvador, Haiti, St. Lucia, South Africa, Suriname, and Vietnam. Assignments range in duration from 2 weeks to 1 month with a few sites requiring longer

time commitments. The primary focus of all PTO programs is to provide training and education for local physical therapy providers. In Haiti, for example, PTO volunteers work in partnership with the Healing Hands for Haiti Foundation in the country's first physical therapy training program. Through this program, 25 rehabilitation technicians are trained each year in a 6-month curriculum. The PTO volunteers provide lectures, demonstrate techniques, and give problem-solving examples to improve the skills of their Haitian students. As a result of HVO's efforts, Haiti now has 50 trained physical therapy providers prepared to treat the country's sizable disabled population.

For more information about Health Volunteers Overseas and the Physical Therapy Overseas division, please contact us at (202) 296-0928 or [info@hvousa.org](mailto:info@hvousa.org). Visit the HVO website at [www.hvousa.org](http://www.hvousa.org).

## CEUs for Your Study Group

Have you ever considered receiving CEUs for your Orthopaedic Study Group programs? Did you know the Orthopaedic Section awards CEUs for these programs? Here's an example of how simple the process is to receive CEUs. Seven months ago 2 physical therapists, Karen Clements and Lola Rosenbaum, decided to form a study group. The first meeting was held in March 2002 and attended by 11 PTs and PTAs. Since then there have been 3 other meetings where topics such as McKenzie progression, osteoporosis, and evidence-based modality use have been presented. Attendance at the meetings rose to new levels when the Orthopaedic Section began to administer continuing education units (CEUs) for study groups. Participants enjoy the opportunity to interact with peers and earn CEUs without travel costs.

The process of obtaining CEUs for your study group meeting is a simple one. Prior to each meeting, the chair of the study group sends the required paperwork to the Orthopaedic Section office. The Section Education Program Chair reviews the paperwork for approval. After the meeting, the chair sends the sign-in sheet and any money owed to the Orthopaedic Section. The CEUs are at no cost to Orthopaedic Section members of your study group. A \$5.00 fee is charged for non-Section members. The CEU certificates are then sent to attendees from the Section office.

The Orthopaedic Section supports the formation of Orthopaedic Study Groups. In addition to CEUs, the Section also provides website space for listing study group information and upcoming meeting dates. A study group list is also published in *Orthopaedic Physical*

*Therapy Practice*, the Section's magazine. Study groups provide an excellent opportunity for peers to learn from each other in an interactive group. The added bonus of earning CEUs makes this a winning combination.

### ATTENTION ALL STUDY GROUPS

The Orthopaedic Section list of Orthopaedic Study Groups is currently out of date. Please help us update our Study Group information. For more information, an application, or to add your Study Group to our list, please contact Stefanie Snyder at 800.444.3982 or [ssnyder@orthopt.org](mailto:ssnyder@orthopt.org)

## Newly Approved Program

Are any of these meetings coming to a town near you?

American College of Nurse Practitioners	nurse.org/acnp/
Oct 30-Nov 2, 2003	Cincinnati
October 20-23, 2004	Philadelphia
American Academy of Physician Assistants	aapa.org
May 22 – 27, 2003	New Orleans
June 1-6, 2004	Las Vegas
May 28 – June 2, 2005	Orlando
American Academy of Family Physicians	aafp.org
October 1-5 2003	New Orleans
October 13-17, 2004	Orlando
Sept 28 – Oct 2, 2005	San Francisco
American Academy of Orthopaedic Surgeons	aaos.org
February 5-9, 2003	New Orleans
Mar 3-10, 2004	San Francisco
Feb 23-27, 2005	Washington, DC

If so, you are encouraged to help spread the word on the benefits of Physical Therapy to these potential referral sources. The Orthopaedic Section may even pay you to do it! Ask about our new program for speaker honorariums. Contact Jessica Cravens at 800/444-3982, ext. 216 or email: jjcravens@orthopt.org

## Application for Speaker Honorarium

Title of Presentation: \_\_\_\_\_

Short Description of Content: \_\_\_\_\_

Type of presentation     Lecture  
     Panel discussion  
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List Three Learning Objectives:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Contact Hours: \_\_\_\_\_

Target Audience: \_\_\_\_\_

Conference Location: \_\_\_\_\_

Conference Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Contact Person from Organization sponsoring seminar:

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

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Would you recommend that a speaker present to this audience next year?



## Department of Physical Therapy

### ASSISTANT / ASSOCIATE & FULL PROFESSOR POSITIONS

The Department of Physical Therapy in the College of Health Professions at the University of Florida Health Science Center invites applications and nominations for 3 Assistant, Associate, and/or Full Professor positions. This ambitious, growing Department, consisting of 12 full-time faculty, is strongly committed to developing an excellent research program. Our primary focus is the development of clinical and translational research programs that are relevant to rehabilitation of individuals with injury, disease or disabilities. To achieve this goal, the Department of Physical Therapy has developed extensive collaborations with the Brooks Center for Rehabilitation Studies, Evelyn F. & William L. McKnight Brain Institute, VA Brain Rehabilitation Research Center, Center for Exercise Science and the Movement Disorders Center, as well as other research centers and departments across the University.

**Responsibilities/ Qualifications:** The successful candidates are expected to develop or continue to develop an active research program and compete for extramural funding. They will contribute to the mission of the Department via dynamic teaching and mentoring of graduate students, post-doctoral fellows and physical therapy students. We are specifically seeking individuals with expertise in neuro-motorplasticity/magnetic resonance imaging, exercise physiology, neuro-rehabilitation or biomechanics/motor control. Candidates must hold a doctoral degree from an accredited institution.

**Salary & Title:** These are 12 month, full-time, tenure track positions. Salary and title are commensurate with qualifications of the candidates.

**Deadline for application is December 1, 2002.** Send a letter of application, a full CV, and 3 letters of reference to: Lynn R. Jernigan, Coordinator, Search Committee, UF Dept of Physical Therapy, Box 100154, Gainesville, FL 32610 (USA)

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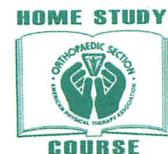
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AA/EA/EEO.

# ORTHOPAEDIC SECTION, APTA, INC.

Presents



## HSC 13.1: Including the Patient in Therapy: The Power of the Psyche

### Course Description:

This course presents a unique look at some of the aspects of “the patient as a whole” and the specific physical therapy interventions that result when truly “including the patient in therapy.” The monograph covers topics such as physical therapy interviewing, diagnostic categorization of patients with mental disorders, mood disorders, personality disorders and anxiety disorders, fear and avoidance in patients with low back pain, chemical dependency and substance abuse, and dementia. Many of these topics may be familiar to you. However, we believe you will find that the information covered in this course sheds new light at a deeper level. You will learn valuable information for your patients having any connection with the topics that are discussed. You will not only gain greater insight, but also practical applications that you can use immediately in your clinic. It is possible that you may never look at your patients in quite the same way after reading these monographs.

### Topics and Authors:

- **13.1.1 Diagnosis of Patients With Mental Disorders**—*Rennie Maeda, PT, MPT, OCS and Mark E. Jaffe, MD*
- **13.1.2 Physical Therapy Management of Fear Avoidance in Patients with Low Back Pain**—*Steven Z. George, PT, PhD and Julie M. Fritz, PT, PhD, ATC*
- **13.1.3 Essential Skills for Interviewing and Educating Patients With Psychological Impairments**—*Michael B. Miller, PT, OCS, FAAOMPT and Joe Godges, DPT, MA, OCS*
- **13.1.4 Chemical Dependency and Substance Abuse**—*J. Carolyn Hultgren, PT, MPH*
- **13.1.5 Common Psychological Challenges to the Physical Therapist: Mood, Anxiety, Somatoform, and Personality Disorders**—*G. Frank Lawlis, PhD, ABPP*
- **13.1.6 Dementia**—*Ruth Mulvany, PT, MS*

### Continuing Education Credit

Thirty contact hours will be awarded to registrants who successfully complete the final examination. Registrants must apply to their individual State Licensure Boards for approval of continuing education credit.

### Registration Fees\*

\$150 Orthopaedic Section Members

\$250 APTA Members

\$350 Non-APTA Members

Include \$5.00 for shipping and handling.

WI residents add applicable state sales tax.

\*If notification of cancellation is received in writing prior to the course, the registration fee will be refunded less a 20% administrative fee. Absolutely no refunds will be given after the start of the course.

### Editorial Staff

Mary Ann Wilmarth, DPT, MS, OCS, MTC, Cert MDT—Editor

Joe Godges, DPT, MA, OCS—Subject Matter Expert

### Additional Questions:

Call toll free 877/766-3452 or visit our web site at:  
[www.orthopt.org](http://www.orthopt.org)



Register online:  
[www.orthopt.org](http://www.orthopt.org)



### 13.1: Including the Patient in Therapy: The Power of the Psyche

Name: \_\_\_\_\_ Credentials (circle one) PT, PTA, other: \_\_\_\_\_

Mailing Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Daytime Telephone Number: (\_\_\_\_) \_\_\_\_\_ APTA ID: \_\_\_\_\_ E-mail: \_\_\_\_\_

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I wish to join the Orthopaedic Section and take advantage of the membership rate. (Note must already be an APTA Member.)

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2920 East Avenue South, Suite 200, La Crosse, WI 54601 Toll Free 877/766-3452



# Check out the Orthopaedic Section, APTA, Inc. Special Interest Groups Preconference Courses

## CSM 2003 - Tampa, Florida

### Wednesday, February 12, 2003, 8:00 AM—5:00 PM

#### Foot and Ankle Special Interest Group-

##### *Foot Orthotic Management of Common Foot and Ankle Conditions: A Problem-based Approach*

This preconference course is designed for the physical therapist who would like to gain additional knowledge and expertise on how best to use foot orthotics in the treatment of common foot and ankle problems from some of the country's top clinicians. The format of the course will be "problem-based." As such, the anatomy, biomechanics, and etiology of 3 clinical scenarios (Posterior Tibialis Dysfunction, Metatarsalgia, and Plantar Fasciitis) will be presented. Following this background information, 3 well-known clinicians will discuss how they manage the condition in question using foot orthotics. Time has been allotted for interaction and discussion between the clinicians and the audience.

#### Featured Speakers:

Mark W. Cornwall, PT, PhD, CPed  
Tom McPoil, PT, PhD, ATC  
Steve Paulseth, PT  
Cheryl Mauer, PT  
Michael Wooden, PT, MS, OCS  
Alan Darby, PT

#### Occupational Health Physical Therapist Special Interest Group-

##### *Developing and Marketing Prevention Programs Based on the Evidence*

This course will present a thorough review of the literature on the evidence, which supports and/or refutes the efficacy and effectiveness of work injury prevention programs. Administrative, engineering, and educational interventions will be explored. The review of the literature will be presented such that the participant in their practice environment can immediately implement practical application of program development, refinement, and marketing. The presenters will integrate injury prevention program methods with effective program implementation in small and large companies. A variety of resources will be provided to participate and small group sessions will be incorporated such that participants will be able to focus upon the type of industry particular to their practice setting.

#### Featured Speakers:

Martha Frame, PT, MBA, OCS  
Brenda Greene, PT, PhD, OCS  
Deborah Lechner, PT, MS  
Frank Fearon, PT, DHS, OCS

#### REGISTRATION FEES

	<i>Early Bird</i>	<i>Advance</i>	<i>On Site</i>
PT Section Member	\$150	\$200	\$225
PTA Section Nonmember	\$125	\$175	\$200
APTA PT Non-Section Member	\$205	\$255	\$280
APTA PTA Non-Section Member	\$165	\$215	\$265
Nonmember	\$225	\$275	\$325
Section Student Member	\$ 35	\$ 75	\$115
APTA Student Member	\$ 45	\$ 85	\$125
Student Nonmember	\$ 90	\$140	\$165

#### Pain Management Special Interest Group-

##### *Neuroplasticity of Pain and Psychology of Pain*

This 1-day course includes a morning session on the neuroplasticity of pain and an afternoon session on the psychology of chronic pain. No one has to tell an experienced therapist that most patients with pain have some level of psychological features that may be inhibiting the therapeutic process. The afternoon workshop will address these issues in the following conceptual outline: the nature of chronic pain, the nature of how a patient's premonitory psychological profile can be an etiological factor in pain, the nature of *Psycho-bio-therapy*, assessing how much a patient is willing to overcome his/her psychological "games," and psychological strategies of a therapist in psychological obstacles.

#### Featured Speakers:

Russ Foley, PT, MS  
G. Frank Lawlis, PhD

#### Performing Arts Special Interest Group-

##### *An Introduction to Dance Medicine*

This 1-day course will include descriptions of dance forms and basic dance vocabulary of the dancer's environment. A discussion of dancer screening will include areas of injuries, technique, diet, and psychological issues. The etiology of common dance injuries and treatment interventions will be described. The session will conclude with a discussion on how to establish a practice that treats dancers.

#### Featured Speakers:

Shaw Bronner, PT, MHS, EdM, OCS  
Brent Anderson, PT, OCS  
Jennifer Gamboa, MPT, OCS  
Marshall Hagins, PT, PhD

\*\*\*Attire: Attendees are asked to wear exercise clothing (sports bras, t-shirts, shorts, leggings) that allows them to move. This course will include experimental dance movement, evaluation, and treatment labs.

**Want to Register?**  
Call APTA's Service Center  
800/999-2782 ext 3395  
www.apta.org/CSM2003

**Questions?**  
Contact Stefanie Snyder  
800/444-3982 ext 205  
ssnyder@orthopt.org



# Book Reviews



Coordinated by Michael J. Wooden, PT, MS, OCS

Brown G. *Gait - An Interactive Tutorial*. Thorofare, NJ: Slack, Inc.; CD-ROM, 2002.

[System requirements for PC: Pentium-based PC or above, Microsoft Windows 95, 98, or later, 6x CD-ROM drive, 32 MB of RAM, 10 MB of hard disk storage, 1 MB (or higher) SVGA video card, 8-bit Sound Blaster-compatible sound card, QuickTime 5.02 or higher for Windows (included). For Macintosh: Power PC or above, 32 MB of RAM, 10 MB of hard disk storage, Mac OS version 8.6 or later, QuickTime 5.02 or higher for Macintosh (included).]

This CD-ROM is designed to teach the basic components of gait analysis using both the Traditional and Rancho Los Amigos methods. The author has incorporated the use of audio, text, video, and diagrams to assist with instruction. Full explanations are provided in audio form and are supplemented with text. The CD-ROM contains an introductory author's guide to the program and 3 major sections that are clearly structured and easily navigated.

The 'Authors Guide to Using the CD' introduces the user to the purpose and organization of the program. An explanation of the progression of the CD is provided and an overview of the type of quiz questions offered upon completion of the program is presented. Helpful pointers are given to assist with program navigation.

The first major section, titled General Information, includes 4 subsections. The initial subsection, Gait Cycle, includes information on the different phases of the gait cycle, an explanation and demonstration of gait analysis using either the Traditional or Rancho Los Amigos method, and diagrammed illustrations of the gait phases for each method. The second subsection, Functions of Gait, includes descriptions of shock absorption, propulsion, dynamic stability, and energy conservation. Third, explanations of terminology that are specific to the Traditional and Rancho Los Amigos methods are provided. Last, a list of references is offered.

The second major section, titled Joints, is divided into 4 subsections. First,

an Overview is provided that includes an introduction to the purposes of gait and main components of gait (stance, swing, double support). The following 3 subsections focus on the different lower extremity joints, ie, hip & pelvis, knee, and foot & ankle. Each of these is further divided into 3 segments: entire, stance, or swing, which represent the portion of gait under study. Once a segment of gait is selected, the user can choose to access the following types of information: kinetics & kinematics, muscle activity, and integrated kinetics, kinematics, and muscle activity. All information is presented in two tracks, gait analysis via the Traditional approach and gait analysis via the Rancho Los Amigos approach. The user is able to follow one track exclusively or alternate between the 2 tracks. Within a track, each phase of gait is repetitively demonstrated via video clips while an auditory explanation is given. The kinetics & kinematics category reviews the definition of each phase of gait, the percent of the gait cycle each phase comprises, the primary objectives of the particular phase of gait, the position of the joint, the vector and torques produced in each phase, and the muscles that are the most active. The muscle activity category provides repetitive video clips of a person walking, highlighting the muscles that are most active. The integrated kinetics, kinematics, and muscle activity category incorporates information from the previous 2 categories into 1 presentation.

The last section of the program is the Self-Assessment Quiz, which includes questions from the general information section of the program and questions specific to gait analysis using the traditional approach and Rancho Los Amigos approach. The quiz is designed to give immediate feedback once an answer is selected and provides an opportunity for the user to review information related to each question while taking the quiz. A total of 73 questions are included, and the user can tally their responses at any time during the quiz.

This CD-ROM introduces the complex task of gait analysis. The strengths of this program are the clear pictures, repetitive video clips, auditory augmentation, and

ability to study gait analysis using either the traditional or Rancho Los Amigos method. The author created a concise instructional tool, which includes the major components of gait that are routinely taught in basic gait analysis. Educators and students should find this product quite useful, especially with its ability to provide repetitive visual depictions of specific gait phases while auditory explanations are provided. Training the eye to analyze movement during dynamic activities such as gait is a challenge. This program should serve to assist the user to develop the ability to perform a systematic gait analysis.

*Brenda Boucher; PT, CHT, PhD*



Lee D. *Imagery for Core Stabilization*. Surrey, BC, Canada: Physiotherapist Corporation; 2002, 40-minute videotape.

You will find people talking about 'Core Stabilization' everywhere. It is one of the most popular topics of the last few years and everyone from athletes, to office professionals, to senior citizens wants to achieve it. This instructional video by Diane Lee focuses on Core Stabilization and the use of imagery to facilitate it.

This video is the fourth of a series about the assessment and treatment of pelvic impairment. From the start, this video is intended for use by the clinician, not the patient. The video was produced to address advances in the understanding of core stabilization since the first video was released in 1998. Mainly, Ms. Lee discusses 2 issues. First, that the exercise program needs to be individually prescribed since not everyone has the same motor pattern and, second, that imagery can be very effective when restoring the muscle control needed for stabilization.

The video begins with a review of the anatomy and basic function of the core muscles: pelvic floor musculature, transversus abdominus, multifidus, and the diaphragm. The review is very thorough but quick so if you are not already very familiar with these muscles, you will

probably need to watch this section a few times. It is very important that you feel comfortable with the anatomy and function of these muscles in order to follow the remainder of the video.

The next part of the video describes some of the more common patterns of dysfunction seen in patients with lumbopelvic pain. Ms. Lee calls these patterns the Inverted Pyramid and the Asymmetric Pyramid. She also describes the Optimal Pyramid, which, as the name implies, is the ideal concert of functioning among the core muscles. Aspects of the Inverted and Asymmetric Pyramids such as common clinical findings, the effect on the biomechanics of the pelvis and hip joint, and common patient populations are discussed in detail. For each pattern, there are different problems and so different goals to achieve with exercise. The ultimate goal is always functioning with the Optimal Pyramid.

The last portion of the video demonstrates an exercise program and progression for each dysfunction. The exercise begins very simply by outlining the goals. As an example, one goal is to achieve unilateral control over the transversus abdominus. Tactile cueing in conjunction with verbal cueing are demonstrated to help the patient establish the imagery that will help them achieve motor control. The narration continuously speaks to the clinician as its audience. The cueing is very effective and emphasizes the pattern as well as indications that a patient is 'cheating.' Interestingly, since one of the core muscles is the diaphragm, the video tells how breathing can be used to either facilitate the motor pattern, or act as resistance for strengthening. The exercises demonstrated use of no or simple equipment so they are very practical for all types of clinical environments. As in other sections of the video, the pace here also is quick. It would be natural for a viewer to watch each part at least a few times. Unfortunately, there are times in the video when a topic is not discussed in great detail but reference is made to another video in which it is more of a focus. Because of this, the video is stronger as a supplement to other information that a therapist may have about core stabilization.

This video is superb for any clinician that has had some continuing education in treating pelvic impairments and instability. It would be a great addition to a

video library. For professionals new to the topic, it will take more time and practice in order to develop mastery and apply techniques to patient care. The untrained therapist might find it useful to view the video many times and even perform the exercises in the video with a fellow therapist who also is learning. It is absolutely too advanced for patients to watch and it has not been produced as a patient education tool.

*Allyson Baughman, MPT*



Hawes MC. *Scoliosis and the Human Spine: A Critical Review of Clinical Approaches to the Treatment of Spinal Deformity in the United States, and a Proposal for Change*. Tucson, Ariz: West Press; 2002:147 pp.

This book is an extensive review of the literature related to the treatment of idiopathic scoliosis. The author is a researcher who was diagnosed with 'moderately severe' scoliosis at the age of 11. After 30 years of symptoms including pain, recurrent respiratory infections, psychological distress, and physical deformity, she began an 8-year program of 'intensive mobilization therapy.' Hawes reports improved symptoms including increased chest wall expansion and a 40% reduction in spinal curvature. It is from this premise that she reviews the research and refutes some of the current medical consensus.

The purpose of this book is 2-fold: to present a thorough review of the research regarding the diagnosis, progression, and treatment of idiopathic scoliosis, and to provide rationale for a change in the medical community's approach to treatment of this disorder. The extensive literature cited in this text comes only from peer-reviewed medical and health journals.

The first section of the book reviews the literature related to diagnosis along with signs and symptoms of idiopathic scoliosis (IS). Treatment of IS and reported outcomes are covered in the second section. Here the author presents a historical perspective of treatment followed by the current principles and practice including observation, bracing, and surgery. Outcomes related to these current treatments are then presented.

The last section of this book is titled, 'Rationale for Change.' The first 3 chapters review the use of exercise in the treatment of IS. The author quotes multiple sources stating that exercise has not been shown to be effective in the treatment of scoliosis. Although Hawes acknowledges the accuracy of the statement, she presents compelling evidence demonstrating the paucity of research related to the use of exercise in the treatment of IS. In the final chapter, the author presents her opinion as to the direction needed for the future of scoliosis research including clinical models and the need for a multidisciplinary approach.

Dr. Hawes has presented a very complete review of the evidence related to the treatment of idiopathic scoliosis. The book is well organized and it includes over 450 references. A presentation of a matrix of hierarchical levels of evidence would have made this book an even better resource. With most of the citations, the reader has no way of identifying whether the research is a randomized controlled trial or a case report lacking in control. This type of schematic presentation would allow the reader to better interpret the evidence.

*Scoliosis and the Human Spine* is a text I would recommend to medical personnel and researchers who have an interest in the history and evidence related to idiopathic scoliosis. The book is also written at a level such that individuals or parents of individuals diagnosed with scoliosis could benefit from reading it.

*Patricia A. Downey, MS, PT, OCS*



Vacarro AR, Albert TJ. *Mastercases: Spine Surgery*. New York, NY: Thieme; 2001: 533 pp, illus.

This textbook was written by physicians to educate the spinal clinician in 'typical' patients with particular diagnoses. The book is organized into easy to follow, illustrated case studies. Each case study is outlined, beginning with a history and physical examination, radiologic findings, diagnosis and discussion of management, including surgical and non-surgical treatments. Discussions include how the surgeries were performed, post-operative management, alternative methods of management, and complications.

Conservative methods including physical therapy modalities and manual techniques are briefly discussed but not in depth.

The book is organized into 63 cases and include the following areas: degenerative conditions of the spine (cervical through lumbar), inflammatory disorders (rheumatoid arthritis to postoperative infections), metabolic diseases (Paget disease to osteoporotic fractures), trauma (spinal cord injury to gunshot wounds), spinal neoplasms, adult and pediatric deformity, and miscellaneous (spinal fluid leakage to vascular malformations).

This book can serve as a great resource to understand standard nonoperative and operative treatment for a diverse group of spinal conditions. The presentation of each case study provides a basis to help to understand how the medical diagnosis of spinal conditions is made, and to familiarize the reader with medical options. This textbook will not provide information related to the treatment of these conditions for the physical therapist. I recommend this textbook for those interested in improving their understanding of how a diagnosis is made, and in the general management of the spinal patient.

Sylvia Mehl, PT



Curtis K. *Physical Therapy Professional Foundations: Keys to Success in School and Career*. Thorofare, NJ: Slack, Inc.; 2002:279 pp, soft cover.

Kathleen Curtis' *Physical Therapy Professional Foundations: Keys to Success in School and Career* is a comprehensive text designed to guide physi-

cal therapy students as they prepare for their professional careers. The author's words, "this book was written to help pre-professional students make healthy choices about entering the field of physical therapy, to assist physical therapy students to establish sound habits and realistic expectations, and to facilitate success for new graduates in the transition from the academic setting to clinical practice."

Divided into 6 parts and an appendix, this book begins with a section that introduces the reader to the current and future status of the physical therapy profession and the evolving roles of the physical therapist. The next section, entitled 'Becoming a Physical Therapist,' summarizes the challenges and expectations of graduate education. Individual chapters within this section are dedicated to topics such as financial concerns; educational program requirements and expectations; student performance evaluation and test taking strategies; standards for professional behavior; and preparation for presentations, papers, and collaborative projects. Part Three of *Physical Therapy Professional Foundations* is devoted to successful strategies for physical therapy students. Included in this section are subjects such as learning strategies, performance anxiety, stress management, and ethical and legal issues. The next section offers advice and strategies for nontraditional students, such as those whose first language is not English, those who are considering second careers as physical therapists, or those who are considering re-entry into physical therapy practice. Also within this section is an entire chapter that describes the types of services available to students with disabilities and the requirements of the academic institution to provide those services. Part Five, entitled 'Planting the

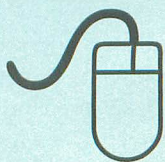
Seeds for a Bright Future,' is a primer on professional issues and topics such as evidence-based practice, information competence, diversity and cultural competency, strategies for inter-professional collaboration, benefits of student involvement in the APTA, and attending professional conferences. The last section of this text addresses the student's transition from physical therapy education to professional practice. Included in this section are chapters entitled 'Preparing for Licensure, Entering the Job Market,' 'Challenges for the New Graduate,' and 'Planning for Professional Development.' Finally, the appendix contains APTA documents such as the Model Definition of Physical Therapy for State Practice Acts, Code of Ethics and Guide for Professional Conduct, Standards of Ethical Conduct for the Physical Therapist Assistant, and Standards of Practice for Physical Therapy and the Accompanying Criteria.

*Physical Therapy Professional Foundations* is written in a well-organized and user-friendly format. The strength of this text lies in the abundance of information it provides. With topics that span nearly every component of the educational process and beyond, this text clearly meets its intended objectives and serves as a valuable resource for students in all phases of their professional education. While this book is intended for physical therapy students, it is also a worthwhile reference for physical therapy faculty and clinicians.

I would highly recommend this text as a resource for every physical therapy student. The variety of useful tools and strategies that this book provides will undoubtedly assist the student in navigating a successful educational and career path.

Phyllis A. Clapis PT, MS, OCS

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and let us know what you think!





# ORTHOPAEDIC SECTION, APTA, INC.

## Tentative CSM Programming

### February 12-16, 2003 • Tampa, Florida

#### WEDNESDAY

**February 12, 2003**

8:00 AM- 5:00 PM

#### **Preconference Courses**

##### **Pain Management Special Interest Group**

AM Program: Neuroplasticity of Pain, Russ Foley, PT, MS

PM Program: Psychology of Pain, G. Frank Lawlis, PhD

##### **Performing Arts Special Interest Group**

An Introduction to Dance Medicine

Shaw Bronner, PT, MHS, EdM, OCS; Brent Anderson, PT, OCS;

Jennifer Gamboa, MPT, OCS; Marshall Hagins, PT, PhD

##### **Foot and Ankle Special Interest Group**

Foot Orthotic Management of Common Foot and Ankle Conditions: A Problem-based Approach

Mark W. Cornwall, PT, PhD, CPed; Tom McPoil, PT, PhD, ATC; Steve Paulseth, PT; Cheryl Mauer, PT;

Michael Wooden, PT, MS, OCS; Alan Darby, PT

##### **Occupational Health Special Interest Group**

Developing and Marketing Injury Prevention Programs Based on the Evidence

Martha K. Frame, PT, MBA, OCS; Brenda Greene, PT, PhD, OCS;

Deborah Lechner, PT, MS; Frank Fearon, PT, DHS, OCS

#### THURSDAY

**February 13, 2003**

12:00 PM-4:30 PM

#### **Research Platforms Session A**

#### **Research Platforms Session B**

1:00 PM - 4:00 PM

#### **Spinal Stenosis versus Osteoporosis: The Treatment Dilemma**

Sara M. Meeks, PT, MS, GCS

1:30 PM - 3:00 PM

#### **Potential Authors Forum**

Susan A. Appling, PT, MS, OCS; Mary Ann Wilmarth, DPT, MS, OCS, MTC, CertMDT;

Guy Simoneau, PT, PhD, ATC

1:30 PM - 4:30 PM

#### **Knee/Patellofemoral Education Group Programming**

Christopher Powers, PT, PhD; Christine Pollard, MS, PT;

Susan Sigward, MS, PT, ATC; Jeff Houck, PT, PhD; Holly Silvers, PT

1:30 PM - 4:30 PM

#### **Yoga and Meditation: Can They Be Used in Physical Therapy?**

Pradip K. Ghosh, PT, MS, DMS, PhD

2:30 PM-3:30 PM

#### **Orthopaedic Certified Specialist (OCS) Exam and Description of Specialty Practice (DSP) – What's the Deal?**

Richard Ritter, PT, MA, OCS; Joe Godges, DPT, MA, OCS

3:00 PM - 4:15 PM

#### **Forum on Clinical Residency & Fellowship Program Development**

3:30 PM-4:30 PM

#### **ABPTS OCS Update**

Rob Landel, PT, DPT, OCS; Nancy Henderson, PT, PhD, OCS; Robert Johnson, PT, MS, OCS

#### FRIDAY

**February 14, 2003**

8:00AM-11:00AM

#### **Spinal Manipulation: Evidence and Evolution in the Management of Low Back Disorders**

LTC Timothy W. Flynn, PT, PhD, OCS, FAAOMPT; Julie Fritz, PT, PhD, ATC;

Robert S. Wainner, PT, PhD, ECS, OCS; Julie Whitman, PT, DSc, OCS, FAAOMPT

8:30AM-10:30AM

#### **Research Platforms Session**

8:30AM-10:30AM

#### **Case Study Presentations**

9:00 AM- 11:00 AM

#### **Occupational Health SIG Programming-**

Moderator Dee Daley, PT

The PATH System - Applied Industrial Ergonomics

Scott Fulmer, MS

<b>FRIDAY</b>	<b>February 14, 2003 (continued)</b>
1:00 PM - 5:00 PM	<b>Performing Arts SIG Programming</b> How Faculty Technical Training Leads to Neuromuscular Faults and Injury. Evidence-based Practice. Out in the Field Susan Kempter, BSMA, TT, FAA; Tom Welsh, PhD; Tyressa Judge, PT; Linda Van Dillen, PT, PhD; Beth A. Lepkowski, MSPT; Joel Dixon, MPT; Marilyn Roofner, PT; Tara Jo Manal, PT, OCS
1:00 PM - 5:00 PM	<b>Pain Management SIG Programming</b> The Pain Reflex. The Anatomical and Physiological Basis for Treatment John Iams, MA, PT
1:00 PM - 5:00 PM	<b>Occupational Health SIG Programming</b> Getting to Zerolift and Staying There Barbara Silverstein, PhD; Kathy Rockefeller, PT, PhD
1:00 PM - 5:00 PM	<b>Foot and Ankle SIG Programming</b> Surgical Management of Hallux Valgus: Implications for Rehabilitation. What Conditions of the Foot and Ankle Should Physical Therapist Treat? Surgical Treatment of Posterior Tibialis Dysfunction. Conservative Treatment of Posterior Tibialis Dysfunction William Fishco, DPM, MS; Cheryl Mauer, PT; Joseph Tomaro, PT, MS, ATC
2:00 PM - 5:00 PM	<b>PTA Education Group Programming</b> Richard Cohen, PhD; Brendan Green, PhD
5:00 PM - 6:00 PM	<b>Business Meetings</b> Animal Physical Therapist SIG Business Meeting Foot and Ankle SIG Business Meeting Pain Management SIG Business Meeting Performing Arts SIG Business Meeting PTA Education Group Business Meeting Manual Therapy Education Group Business Meeting
5:00 PM-6:30 PM	Occupational Health SIG Business Meeting

<b>SATURDAY</b>	<b>February 15, 2003</b>
8:30 AM - 10:00 AM	<b>Orthopaedic Section Business Meeting</b>
11:00AM-1:00PM	Unopposed Exhibit Hall
1:00 PM - 2:30 PM	<b>Research Platforms Session A</b> <b>Research Platforms Session B</b>
1:00 PM - 4:00 PM	<b>Manual Therapy Education Group Programming</b> Jack M. Stagge, PT, OCS
1:00 PM - 5:00 PM	<b>Animal Physical Therapist SIG Programming</b> Animal Rehabilitation Practice: How to Build a Successful Animal Rehabilitation Practice; Physical Evaluation and Management of Spinal Conditions in the Dog; Physical Evaluation and Management of Spinal Conditions in the Horse; Platform presentations T. Neal Hughes, MEd, PT; Debbie Gross Saunders, PT, MS, OCS; Siri Hamilton, PT, LVMT; Kevin Haussler, DVM, DC, PhD
2:00 PM-5:00 PM	<b>Primary Care Education Group Programming</b> Michael B Koopmeiners, MD; Robert Duvall, PT, DHSc, MMSc, OCS, MTC, PSS, CSCS
2:30 PM - 3:00 PM	<b>Rose Research Platform</b>
5:00 PM - 6:00 PM	<b>Primary Care Education Group Business Meeting</b>
3:00 PM - 5:00 PM	Eugene Michels Researcher's Forum
6:30 PM - 8:00 PM	<b>Awards Ceremony</b>
8:00 PM -11:00 PM	<b>Black Tie and Roses Reception</b>

<b>SUNDAY</b>	<b>February 16, 2003</b>
8:00 - 12:00	<b>Occupational Health SIG Board Meeting</b>

# ORTHOPAEDIC SECTION, APTA, INC.

## FALL BOARD OF DIRECTORS MEETING

### LA CROSSE, WISCONSIN • SEPTEMBER 20-21, 2002

#### MINUTES

Michael Cibulka, President, called a regular meeting of the Board of Directors of the Orthopaedic Section, APTA, Inc. to order at 8:00 AM Central Standard Time on Saturday, September 21, 2002.

Present:

Michael Cibulka, President  
 Lola Rosenbaum, Vice President  
 Joe Godges, Treasurer  
 Joe Farrell, Director  
 Gary Smith, Director  
 Paul Howard, Education Chair  
 Jay Irrgang, Research Chair  
 Steve McDavitt, Practice Chair  
 Tara Fredrickson, Executive Associate  
 Terri DeFlorian, Executive Director (Secretary)

Absent:

None

The July 9, 2002 Executive Committee Conference Call meeting minutes were approved as written.

The Board of Directors reviewed the Annual Conference meeting to do items.

=MOTION 1= Mr. Godges moved that the Animal SIG Board of Directors will review and comment on the utility of the following statement describing their scope of practice: The Animal PT SIG scope and mission includes: 1) Prevention and rehabilitation of injuries in animals, including assistance and athletic animals, 2) Prevention and rehabilitation of human musculoskeletal disorders that are related to working with assistance and athletic animals. ADOPTED (unanimous)

Mr. McDavitt informed the Board of Directors that the APTA House of Delegates in June 2002 passed RC 53-02: *Continuing Education for Individuals Other Than Physical Therapists and Physical Therapist Assistants* and RC 58-02: *Interstate Reciprocity* both of which

the Orthopaedic Section was a co-sponsor.

The Board of Directors reviewed the Sections Goals and Objectives.

=MOTION 2= Mr. Farrell moved to charge the SIG Task Force to work out the details of orientation and communication for SIGs, Section Board of Directors, and Section office. ADOPTED (unanimous)

=MOTION 3= Mr. Godges moved to rescind the following motion:

=CSM 2002 BOD Meeting MOTION 1= Ms. Grove moved, "The priority for adding money back into the budget if and when it becomes available be prioritized as follows;

- a) SIG prior year funds (OHSIG \$26,041.14, FASIG \$23,325.22, Animal SIG \$17,419.19, Pain SIG \$2,977.60)
- b) Equipment for the Section office - \$5,000
- c) Foundation for Physical Therapy - \$100,000
- d) Benevolent giving to include but not be limited to PAC funding
- e) Research grants - \$15,000
- f) President stipend - \$5,000

This list will be revisited each year.

=ADOPTED=

ADOPTED (unanimous)

=MOTION 4= Mr. Godges moved to communicate with the Foundation for Physical Therapy relative to the Section's financial commitment by letter. ADOPTED (unanimous)

=MOTION 5= Mr. Godges moved that the following fees be approved for Home Study Courses:

6 monograph course	
Orthopaedic Section Member	\$150
APTA Member	\$250
Non-APTA Member	\$325
3 monograph course	

Orthopaedic Section Member	\$ 75
APTA Member	\$150
Non-APTA Member	\$200

Multiple registrant discount	
6 monograph course	\$100
3 monograph course	\$ 75

Educational discount	\$110
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Copyright permission	\$225
(\$110 for purchase of course at the educational discount rate and \$115 for copyright permission)	
ADOPTED (unanimous)	

=MOTION 6= Mr. Godges moved that the 2003 operating budget be approved as amended. ADOPTED (unanimous)

=MOTION 7= Mr. Godges moved to change the Section's mutual fund investment strategy to a more conservative stature (ie, 60% growth stocks, 40% securities). ADOPTED (unanimous)

=MOTION 8= Mr. Godges moved that Steve Clark continue for a full three year term as Finance Committee member beginning June 2003. ADOPTED (unanimous)

=MOTION 9= Mr. Howard moved to approve the CSM 2003 program. ADOPTED (unanimous)

The Board of Directors, by consensus, recommended supporting the following individuals for APTA national office; Vice President, Janet Benzer and Janet Downey; Director, Janet Peterson and Richard Smith.

The Board of Directors, by consensus, approved recommending individuals for the APTA Signe Brunnstrom Award for Excellence in Clinical Teaching and the Lucy Blair Service Award.

*(continued on page 34)*

# SECTION NEWS

## Education/Program Committee

The Education Committee with the assistance of Joe Godges revised the Practice Analysis Grant Application last spring. At the recent Fall BOD Meeting it was decided that a 3-member panel would be appointed to review applications received in the future.

The Orthopaedic Section has recently developed a method for PTs to receive CEUs. If you have a local study group or are interested in forming one, contact the Section office regarding information about receiving CEUs for your programming.

CSM 2003 will be here before you know it and what a program we have planned for you! CSM will be held in Tampa from February 12-16. The meeting will start off with 4 one-day pre-conference courses, including: Neuroplasticity of Pain and Psychology of Pain; Physical Therapy Management of the Dancer; Foot Orthotic Management of

Common Foot and Ankle Conditions: A Problem-based Approach; and Developing and Marketing Injury Prevention Programs Based on the Evidence. These programs are being sponsored by 4 of the Orthopaedic Section's SIGs. Our 5 SIGs and 4 Education Groups also will have outstanding programs prepared on a wide variety of topics throughout the conference.

In addition to the above programming there are 4 short programs being presented that you will not want to miss. For complete programming details check elsewhere in *OP* or look in the next issue of *PT Magazine*. New this year will be a Potential Authors Forum. Come and meet the editors of *JOSPT*, *OP*, and our Home Study Courses. Time will be available for questions regarding manuscripts you are working on or considering.

Handouts for CSM will once again be available before and after CSM at the Section's website ([www.orthopt.org](http://www.orthopt.org)).

APTA members will be able to download and print the handouts of presentations they plan on attending before they leave for CSM. Plan ahead by visiting the Section website and obtaining handouts that you are interested in. *Handouts will not be available on-site at CSM.*

Finally I would like to thank the SIG and Education Group Education Chairs, our planned speakers, and Stefanie Snyder at the Orthopaedic Section office for all their hard work in putting together CSM. It is only through the hard work of many individuals that this outstanding meeting takes place.

See you in Tampa!

*Paul D. Howard, PT, PhD, OCS, Cert MDT  
Education/Program  
Committee Chair*

## Fall BOD Meeting (continued from page 33)

The Board of Directors, by consensus, assigned individuals to each recommendation from the Revenue Generation Task Force report to investigate further. Findings are to be submitted to the Board no later than December 1, 2002.

The Board of Directors, by consensus, charged Lola Rosenbaum, Paul Howard, and Steve McDavitt to write a letter to APTA stating that the Orthopaedic Section Business Meeting at CSM remains on Saturday morning.

=MOTION 10= Mr. Godges moved to appoint 3 people to an ad hoc committee to review grant applications for practice analysis. ADOPTED (unanimous)

The Board of Directors, by consensus, agreed that the Specialization Chair will be budgeted for one day lodging and meals to attend the CSM Board of Directors meeting each year and will be funded every 3 years to attend the Fall Board of Directors strategic planning meeting.

The Board of Directors charged Lola Rosenbaum to pursue getting an audit done for the *JOSPT* for year end 2001.

=MOTION 11= Mr. Godges moved that the following policy be adopted:

If an Orthopaedic Section Special Interest Group requests to exhibit at a liaison function and want to use the Orthopaedic Section's exhibit booth as a display, the following steps must be adhered to:

- The request to exhibit at a conference must be presented at the time budgets are due to the Orthopaedic Section office for approval by the Executive Committee and inclusion in the following year's budget (by May 1st);
- All paperwork regarding the conference exhibit booth will be processed by the Orthopaedic Section's Program Coordinator;
- The Orthopaedic Section's Program Coordinator will need to be informed of materials needing to be sent with the booth at least 3 weeks

in advance to the booth being shipped to the exhibit location;

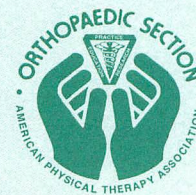
- It is the SIG's responsibility to inform the Orthopaedic Section's Program Coordinator of who will be in charge of receipt of the booth once it arrives onsite, who will be present at the booth during the conference, and who will be responsible for shipping the booth back to the Orthopaedic Section office;
- Should any materials not be returned to the Orthopaedic Section office following the conference, it will be the applicable SIG's responsibility to reimburse the Section the cost for the missing items. The same will apply to any items returned that have been damaged due to negligence (e.g., gross errors when repacking the exhibit display for shipping). ADOPTED (unanimous)

The meeting adjourned at 4:30 PM.

Submitted by Terri A. DeFlorian,  
Executive Director (Secretary)  
(Adopted by BOD)



## OCCUPATIONAL HEALTH PHYSICAL THERAPISTS SPECIAL INTEREST GROUP



ORTHOPAEDIC SECTION, APTA, INC.

Winter 2002

Volume 14, Number 4

### THE "ZERO LIFT" PHILOSOPHY OF PATIENT HANDLING: OVERVIEW AND KEY COMPONENTS

*Kathleen A. Rockefeller, PT, ScD, MPH*

Let a real mechanical device do the work. Decrease the number of times a day the human body operates as a derrick and decrease the number of injuries related to patient handling. The premise has intuitive appeal, especially to members of the occupational health community and nursing profession.

Caring for others can be physically and emotionally demanding. Nursing work, in particular, involves the frequent lifting and handling of patients—that is not new information. Also common knowledge is evidence of high numbers of injuries to nursing personnel related to patient handling. What *is* new, however, is the availability of modern equipment to assist in handling patients—equipment that is more comfortable and secure for patients as well as easier to use and maneuver for caregivers. These devices are in stark contrast to the older pieces of equipment frequently gathering dust in health care facilities—lumbering devices with chains operated by jerky hand-cranked mechanisms.

New equipment for patient handling is battery operated for smooth and steady movement. Patients are supported by slings that are securely fastened to the devices, while the slings come in a variety of sizes and types. So-called 'total lifts' are available to assist in handling patients who are totally dependent, while 'sit-to-stand' lifts are used to assist patients who can partially and momentarily bear weight.

Increasingly, members of the nursing profession have been encouraging the use of mechanical equipment to assist in patient handling. The goal of using equipment is to decrease exposure to the hazardous levels of biomechanical forces and awkward postures inherent in patient handling. These exposures, of course, have been associated with high rates and severity of injuries to caregivers.

Philosophies of decreasing the amount of manual patient handling have been termed 'zero lift' or 'no lift' or 'low lift' by the industry. For example, the Royal College of Nursing in Great Britain issued a Code of Practice for Handling Patients that was revised in 1996 to state: "The aim is to eliminate hazardous manual lifting in all but exceptional or life-threatening situations. Patients should be encouraged to assist in their own transfers, and handling aids must be used whenever they can reduce the risks of injury. Handling patients manually may continue only if it does not involve

lifting most or all of the patient's weight....Staff should assess the capabilities of a patient to decide on which, if any, handling aids are suitable."

The goal of the Code was to minimize manual patient handling in order to decrease injury risks to both caregivers and patients, as well as to encourage patient functional mobility to the greatest possible extent. Various nursing federations and professional societies in Australia and New Zealand soon followed with similar declarations.

In the Canadian province of British Columbia, a tri-partite agreement between the Ministry of Health, Workers' Compensation Board, and an association of labor unions representing health care workers resulted in the provision of funds for installing overhead ceiling lifts in health care facilities across the province. The initiative is being managed and evaluated by the Occupational Health and Safety Agency for Healthcare in British Columbia (OHSAH), which maintains an excellent web site containing a great deal of useful information ([www.ohsah.bc.ca](http://www.ohsah.bc.ca)).

In the United States, the Department of Veteran's Affairs funded the Veteran's Hospital in Tampa to establish a Patient Safety Center of Inquiry to focus on safe mobility ([www.patientsafetycenter.com](http://www.patientsafetycenter.com)). The Center is actively engaged in basic and applied research on a variety of topics related to patient and caregiver safety, and also has an excellent web site. In Washington State, the Department of Labor & Industries partnered with the nursing home industry to study the implementation of 'zero lift' programs across the State over a 3-year period ([www.lni.wa.gov/insurance/hip/](http://www.lni.wa.gov/insurance/hip/)).

### KEY COMPONENTS OF ZERO LIFT PROGRAMS

It has been suggested that a number of key components are critical to the success of implementing zero lift programs. While intuitively appealing, current research is studying the relative importance of these components.

#### 1. Equipment

For caregivers to adopt a zero lift philosophy into daily work practices, there must be adequate availability of assistive devices conveniently available for convenient use. The types and numbers of devices should be obtained based on the needs of patients and caregivers in a specific facility. Accessories, such as slings and battery packs, should be obtained as well. Processes need to be in place to address equipment maintenance and repair, battery charging and replacement, and laundry requirements. Equipment should

be easily accessible for those who need to use it.

## 2. Commitment and Involvement

Equipment alone is not sufficient. Ideally, before equipment is even purchased, a degree of management commitment has been obtained and employees have been involved. Key members of the management team (eg, administrators, directors of nursing services, physical therapists, staff development coordinators) should understand and support the zero lift philosophy. Resources need to be allocated and accountability for the program delineated.

All employees should have input into the program. Safety committees, task forces or special working groups may be used. Caregivers should be involved with the selection of equipment.

## 3. Policies & Procedures

The use of assistive equipment for patient handling needs to be integrated in standard daily operations. Expected behaviors should be defined and communicated. Deviations from expected behaviors should be investigated before blaming employees, and consequences should be clear, fair, and consistent. Information about handling policies and procedures should also be shared with residents, potential residents, and their families.

## 4. Training

Appropriate and safe use of patient handling devices should be integrated into the existing staff development and training plans. As needed, individual coaching and mentoring should be offered. Training should be part of initial employee orientation, and regular refresher training should be on-going. Training should be updated as needed. All caregivers should be trained on the use of handling devices.

## 5. Medical Case Management

Accidents may still occur during patient handling tasks, and should be investigated to better understand root causes and contributing factors. The case management process for injured workers should be active, not relying solely on third party administrators. Job modifications should allow injured workers to remain as active as possible. Medical professionals in the community who treat injured workers should know of zero lift programs and available equipment for patient handling.

## ROLE OF PHYSICAL THERAPY

Physical therapists can make key contributions to the success of zero lift programs in a variety of ways. They are often in positions to promote both patient independence AND increased safety for caregivers and patients. These 2 goals should be complementary. Patients must be correctly evaluated for functional mobility and this information is critical to the development of individual care plans. In many instances, the creative use of handling equipment (such as sit-to-stand lifts) can become another strategy to reach rehabilitation goals.

Therapists can offer guidance on individual techniques for patient handling. Their input may be particularly valuable when brain-storming ideas for handling 'difficult' or unusual patient situations. They can be valuable members of committees or focus groups addressing issues related to patient handling.

Decreasing the amount and severity of injuries related to patient handling is an important goal for both caregivers and patients alike, and a real concern to occupational health professionals. Improving patient functional mobility is an important outcome as well. The use of appropriate pieces of mechanical equipment and assistive devices may well facilitate both these goals.

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# FOOT & ANKLE

## SPECIAL INTEREST GROUP ORTHOPAEDIC SECTION, APTA, INC.

Greetings,

Much is happening in the FASIG pointing towards the 2003 Combined Sections Meeting in Tampa. The education program is set; please review the Vice President's report by Mark Cornwall. Mark has planned another excellent program with a preconference course set at Tampa on Wednesday February 12, 2003. Review the report and see if you want to come early to CSM in Tampa.

**Nominations:** A slate of candidates has been sent to each member of the Foot and Ankle Special Interest Group. The ballot consisted of the Vice President to replace outgoing VP Mark Cornwall and a position on the Nominating Committee. The results of the election will be presented at the FASIG Business Meeting at CSM.

Please see the box for all Orthopaedic Section Members to join us in the FASIG network. By filling out the form, you will be placed in the directory of PTs under the "FIND A FOOT AND ANKLE PHYSICAL THERAPIST" on the FASIG portion of the Section website. Go to the Orthopaedic Section website ([orthopt.org](http://orthopt.org)) and then click on Committees/SIGs, which will bring up the Foot and Ankle Special Interest Group. While you are at the website, check out the Bulletin Board, where you may want to post a question related to a clinical problem or voice a concern in dealing with our profession.

Finally we have an editorial from Tom McPoil, PT, PhD, ATC. From textbooks, to continuing education courses, research presentations, and multiple publications in peer-reviewed journals, Tom McPoil has a keen insight into the foot and ankle as related to physical therapy. As the driving force behind the FASIG at its inception, Tom has continued to produce meaningful research and increase the body of knowledge and evidence related to the practice of physical therapy in the foot and ankle. Tom offers his insights into his ideas of future research in the foot and ankle.

The Board members of the Foot and Ankle Special Interest Group look forward to another productive year in 2003. Please join us if you will be in Tampa. I can be reached through e-mail at [sfreischl@charter.net](mailto:sfreischl@charter.net).

Thank you all,  
Steve Reischl, DPT, OCS

### Vice President Report

*Mark Cornwall, PT, PhD, CPed*

### Foot Orthotic Management of Common Foot and Ankle Conditions: A Problem-based Approach Preconference Program - CSM 2003

February 12, 2003

This preconference course is designed for the physical therapist who would like to gain additional knowledge and expertise on how best to use foot orthotics in the treatment of common foot and ankle problems from some of the country's

top clinicians. The format of the course will be problem-based. As such, the anatomy, biomechanics, and etiology of 3 clinical scenarios will be presented. Following this background information, 3 well-known clinicians will discuss how they manage the condition in question using foot orthotics. Time has been allotted to allow for interaction and discussion between the clinicians and the audience.

### Clinical Scenarios

- Posterior Tibialis Dysfunction
- Metatarsalgia
- Plantar Fasciitis

### Course Faculty

- Mark W. Cornwall, PT, PhD, CPed (Moderator)
- Tom McPoil, PT, PhD, ATC
- Steve Paulseth, PT
- Cheryl Mauer, PT
- Michael Wooden, PT, MS, OCS
- Alan Darby, CPed, PA

The Foot and Ankle Special Interest Group of the Orthopaedic Section, American Physical Therapy Association, is sponsoring this course.

In addition to the preconference course, FASIG will present 4 hours of programming related to foot and ankle. These presentations will be on Friday, February 14, 2003, from 1:00pm to 5:00pm.

### Speaker #1

Surgical Management of Hallux Valgus: Implications for Rehabilitation

William Fishco, DPM, MS  
Phoenix, AZ

### Speaker #2

Coupling of the Rearfoot and Leg and Implications for Lower Extremity Overuse Injury

Joseph Tomaro, PT, MS, ATC  
Pittsburgh, PA

### Speaker #3

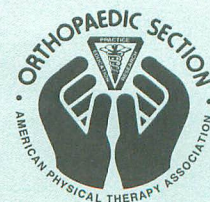
Surgical Treatment of Posterior Tibialis Dysfunction, Including Rupture

William Fishco, DPM, MS  
Phoenix, AZ

### Speaker #4

Conservative Treatment of Posterior Tibialis Dysfunction, Including Rupture

Cheryl Mauer, PT  
Belmont, MA



## The FOOT and ANKLE: Future Directions for Physical Therapy Research

Thomas G. McPoil, PT, PhD, ATC

The past decade should be recognized for improving our understanding of foot and ankle movement and mechanics. Published studies have led to a greater understanding of intra-articular motions of the various joints of the foot and ankle as a result of movements occurring during static standing.<sup>1</sup> Additional investigations have been published that describe the patterns of movement of the rearfoot and to some degree the midfoot during dynamic activities such as walking.<sup>2-7</sup> As our knowledge regarding the movements of the foot has increased, these studies, which have used both 2-dimensional and 3-dimensional analysis methods, have also demonstrated that the foot remains in a pronated posture for a longer period of time than was previously proposed *and* that the rearfoot as well as the midfoot operate about an individual's resting standing posture during dynamic activities such as walking. No doubt further study is required in this area of research, since the majority of these studies have used markers or electrodes that were placed on the skin and several studies have demonstrated that skin movement can contribute to error associated with marker movement.<sup>8,9</sup> Irrespective of the issues associated with the current methodologies used to assess dynamic foot movement, the current body of knowledge regarding static intra-articular and dynamic movement of the foot and ankle has dramatically increased over the past 10 years.

As we enter this next century, a major issue that must be addressed is the development of a reliable method of assessing foot and lower extremity alignment. In my opinion, the development of this reliable measurement methodology is critical in order to permit the initiation of multisite clinical outcome studies. The recent avocation of evidence-based practice requires the practitioner to use measurements that are both reliable and valid. The foot and ankle system of evaluation and treatment proposed by Root and colleagues in the late 60s,<sup>10</sup> has been shown to have a fair level of intra-rater reliability, but a poor level of inter-rater reliability.<sup>11-13</sup> Thus, while a clinician can expect to get fairly similar results when repeating measurements of the forefoot and rearfoot alignment as long as they constantly practice, 2 clinicians in different clinics will most likely get substantially different results irrespective of their level of experience. More importantly, deformities of the forefoot and rearfoot, termed forefoot and rearfoot varus or valgus, have been shown not to significantly affect the pattern of rearfoot motion during dynamic movements such as walking.<sup>14</sup> In order to establish multisite clinical-based outcome studies to assess the efficacy of various foot and ankle interventions, it is critical that 2 or more experienced therapists be able to compare their findings from a physical examination from a series of patients with a similar clinical diagnosis. Thus, future research activities need to focus on developing a protocol for the physical examination of lower extremity and foot alignment that has a high level of intra- and inter-rater reliability. In light of the fact that experienced clinicians demonstrate poor consistency when attempting to repeatedly position a patient's subtalar joint in neutral position, the use of subtalar joint neutral position as the key alignment criteria for assessing normal foot alignment must be avoided with the development of this *new*

examination and intervention scheme.<sup>15</sup> Most importantly, the new scheme for assessing alignment should permit the clinician some ability to predict foot posture at specific key points during walking and other activities. Not until a reliable and valid scheme for assessing lower extremity, foot and ankle alignment is created, can the development of multisite clinical based studies be initiated to assess the efficacy of various interventions for the surgical and conservative management of foot and ankle conditions.

Another important area that requires further study is the effect of foot orthoses on the *neuromusculoskeletal* system. Based on the current body of knowledge, the most common reason for prescribing foot orthoses in the United States is for the control of foot motion. In most of the available literature, which unfortunately is anecdotal, the foot motion being *controlled* is pronation which is often characterized as being *excessive*. Unfortunately, the majority of the investigations that have attempted to assess the degree of motion control provided by foot orthoses have shown that the maximum amount of pronation control achieved is *rarely* more than 2°. <sup>16-19</sup> Two degrees could be considered a substantial amount of pronation control based on the fact that the average amount of rearfoot movement while walking is 6° or less. Recent studies, however, have demonstrated that when skin movement is taken into account, the actual amount of motion controlled by a foot orthosis may be 1° or less.<sup>9</sup> Of further interest is the fact that the same degree of motion control is provided by foot orthoses irrespective of whether the device is posted or total contact as well as whether rigid or soft materials were used to fabricate the foot orthoses. This being the case, it may be that the effect of a foot orthosis is only partially to provide motion control and that a more significant effect is to influence the neurosensory system. A recent paper by Nigg has proposed a new paradigm in which both the shoe and the foot orthosis act as filters to modify or dampen the sensory input acting on the body during activities such as walking and running.<sup>20</sup> If the foot orthosis acts to filter external input to the nervous system at the skin-foot orthosis interface during dynamic activity, this attribute must be studied to determine if or when the nervous system adapts to the filtering functions of the foot orthosis. If adaptation indeed occurs, then criteria would need to be developed to assist the clinician in determining when the device should be removed to permit a "re-calibration" of the nervous system as when it can be reintroduced to get the desired outcome effect. As with any research effort, further study may delineate other functions that foot orthoses can provide the patient or client beyond the more traditional purpose of motion control.

The next decade promises to bring continued discovery that will further add to the physical therapy body of knowledge in the area of foot and ankle intervention strategies. Hopefully, a true *physical therapy* approach to the examination and management of foot ankle conditions will be developed based on a set of reliable and valid tests and measurements as well as sound rationale for the utilization of foot orthoses.

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 Los Angeles, CA 90067-4708 paulsethpt@earthlink.net

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 Cheney, WA 99004-2431

### PRACTICE CHAIR:

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 490 East North Ave, Suite 501 (412) 434-4909 FAX  
 Pittsburgh, PA 15212 tomaro@dug3.cc.edu

## FOOT & ANKLE SPECIAL INTEREST GROUP Membership Form

To be a FASIG member, you must also be a member of the Orthopaedic Section. You may use this form for new membership, change of address, or updating your information.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_ APTA Member \_\_\_\_\_



## Performing Arts Special Interest Group • Orthopaedic Section, APTA

### MESSAGE FROM THE PRESIDENT

I hope this message finds each of you doing well. As we all prepare for CSM in Tampa, Florida, I am reminded that this time of year is frequently a great time to get involved in annual screenings for either local dance groups or musician groups. Look at participating in a screening in your community as a great way to get going in the performing arts. You can learn a great deal about body type, physical characteristics, and injury patterns. AND as it happens, the PASIG's preconference course (which is being offered in Tampa, Florida, in February at CSM) will cover the basics of Dance Medicine. If you want to grow this area of your practice, this is an excellent opportunity and promises to be an exciting course offering. Our web site should include the course outline as well as speaker bio information, [www.orthopt.org](http://www.orthopt.org).

On a related note, it is only through good feedback that the PASIG can better serve your needs. Our Practice Analysis has been sent out and is awaiting your input. You should have received your survey by now. If not, please contact David Murawski at Knapp & Associates International, Inc. by telephone at (609) 921-3478 immediately. We have a deadline to meet in order to have time to properly compile the survey data. I urge you to please complete your survey ASAP. As a result of your input, a document called the *Description of Advanced Clinical Practice* will be generated that will guide future course offerings, home study course materials, mentorship, and fellowship programs. I cannot emphasize enough the importance of doing your part by completing AND returning your finished survey. We have tried to be exhaustive in our mailing list for this survey, but we may have unintentionally missed a few of you. If you, or someone you know, are a PT that deals with performing artists (musicians, dancers, gymnasts, circus performers, figure skaters), please let us know if a survey is needed.

APTA has posted information on CSM activities, housing, registration, etc on the web site. We have an exciting general program to offer you as well. Come network with fellow colleagues and enjoy a little Florida sun! I look forward to hearing from each of you—both at CSM and in response to YOUR practice analysis.

Yours in the arts,

*Jeffrey T. Stenback, PT, OCS*

*President, Performing Arts Special Interest Group*

*JSPTOCS@hotmail.com or by phone (305) 595-9425*

Combined Sections Meeting  
PASIG Preconference Course

### PERFORMING ARTS SPECIAL INTEREST GROUP INTRODUCTION to DANCE MEDICINE

**INSTRUCTORS:** Brent Anderson PT, OCS  
Shaw Bronner PT, MHS, EdM, OCS  
Jennifer Gamboa MPT, OCS  
Marshall Hagins PT, PhD

- I. **Introduction to Dance:**  
Lecture/Interactive Demonstration
- II. **Preseason Screening for Dancers:**  
Lecture/Demonstration
- III. **Dance-specific Functional Examination and Evaluation:**  
Lecture/Demonstration
- IV. **Treatment Essentials for Dancers:**  
Lecture/Lab
- V. **Getting Started in Dance Medicine:**  
Panel Presentation/Discussion

### GET INVOLVED IN THE PASIG!

Join your fellow PASIG members in becoming an ambassador for the Performing Arts! The PASIG wants to encourage all our members to become actively involved by serving as committee members, regional directors, officers, and by offering your input at business meetings and through communication with other PASIG members. Remember, when you give of your time and energy to the PASIG, it's like giving a gift to yourself! The PASIG is only as strong as its members.

### ANNOUNCEMENTS

#### **ADAM Center News**

Shaw Bronner would like to announce a name change from Soar Research to the **Analysis of Dance and Movement (ADAM) Center** at Long Island University. The ADAM Center conducts research in areas such as the biomechanics of human movement, focusing on healthy and injured dancers. The ADAM Center has a fully instrumented biomechanics lab including a 3-D motion analysis system,

force plate, telemetered EMG, and electrogoniometers. ADAM Center physical therapists and athletic trainers also conduct annual screening and injury prevention workshops for dance students at Long Island University and the Alvin Ailey School and dance companies.

For more information, please contact:

Shaw Bronner PT, MHS, EdM, OCS

Director

ADAM Center at Long Island University

Alvin Ailey Therapy Services

718-246-6377

### **Harkness Center News**

Harkness is hosting the 12th Annual Conference of the International Association for Dance Medicine and Science on Oct 24-27, 2002. Over 400 registrants from every corner of the globe are coming. Many distinguished Performing Arts Medicine professionals are presenting papers, posters and movement sessions, including several of our own PASIG members.

Harkness offers thrice monthly, all day dancer injury prevention screenings with one hour, free, one-on-one assessment of a dancer by a highly-trained dance PT on a first come, first served basis. By appointment, 212-598-6022.

Harkness is looking for volunteer dancers to participate in an ACL research study. All dancers, whether ACL-intact, ACL-reconstructed or ACL-deficient are welcome to participate in a 3-hour analysis of mobility, strength, function and kinematic/kinetic/EMG analysis of gait, passe, saute, hop and jete. By appointment, 212-598-6022.

Harkness annually provides preseason preventative screenings and off-site services for: Dance Theatre of Harlem, SUNY Purchase, De La Guarda (off-Broadway) and many others as requested.

Please call 212-598-6022 for questions or if more information is needed.

Thanks,

Marijeanne Liederbach

*marijeanne.liederbach@med.nyu.edu*

### **COMMITTEE UPDATES**

Committee objectives are formally outlined and described below. The committees are responsible for fulfilling and carrying out the PASIG's purpose and objectives. All committees will meet with the President in March to develop strategic plans for the year. Committee membership involves a 3-year commitment. Some committees still need members. If you have an interest in committee involvement, please contact the Committee Chairperson, who is listed in the directory on the last page of this newsletter.

### **NOMINATING COMMITTEE**

#### **LAST CALL FOR NOMINATIONS**

There is one opening on the 3-member *Nominating Committee* for a 3-year term. Members network the PASIG membership to develop candidates for office and assist in overseeing the election process. This is an excellent way to get involved in supporting your SIG.

Guidelines: Nominees must be PASIG and Orthopaedic Section members. Nominees must give their consent to be nominated before their names are put forward. Nominees may be self-nominated. Nominees' names should be submitted to Shaw Bronner, Nominating Committee Chair: *sbronner@liu.edu*.

UPDATE: Please begin considering nominations for the positions of Secretary and Vice President, as both of these positions will be up for election in 2004.

Shaw Bronner PT, MHS, OCS

*Nominating Committee Chair*

*sbronner@liu.edu*

### **EDUCATION COMMITTEE**

**Please join us at CSM in Tampa, Florida for a very exciting PASIG Conference!**

This year's PASIG CSM programming has expanded to include a 1-day preconference course on dance medicine. We present this programming in response to the many requests to include programming that trains the physical therapist to treat the performing artist. We plan to present a preconference course in 2004 on music medicine. This year's preconference course will include an introduction to dance terminology and common dance injuries, preseason screening protocol, and evaluation and treatment of dance injuries. Experienced performing arts physical therapists will guide participants in labs to evaluate and treat common dance problems.

The regular programming is again divided into 3 areas: education, research, and practical issues. Two well known performing arts educators, one in music and one in dance, will present on how alignment and body mechanics impact performance. The research programming will feature evidence-based performing arts case studies. Shop talk features performing arts physical therapists and how they treat backstage and while touring.

The programming is well rounded and designed to meet the needs of the practitioner interested in getting started in performing arts medicine as well as the experienced performing arts physical therapist. Hope to see you there.

### **CSM PROGRAMMING – 2003**

**Friday, February 13, 2003**

#### **How Faulty Technique Leads To Injury** **(Presented by performing arts educators)**

**Moderator – Lynn Medoff, PT**

**1:00 – 2:00**

#### **Dance**

Tom Welch, PhD and Tyressa Judge, PT

Misalignments, Faulty Execution, and Dance Injuries

**2:00-3:00**

#### **Music**

Susan Kempter, BSMA, TT, FAA

Kinesthetic Approaches to String Teaching

## Research

### Evidence-Based Practice

**Moderator:** Linda VanDillen, PT, PhD

**3:00-3:15** Linda VanDillen, PT, PhD

Evidence-based Practice

### **3:15-4:00** Case Studies

Beth A. Lepkowski, MSPT

Treatment of Focal Dystonia with Sensory Integration in a Professional Pianist

Tara Jo Manal, PT, OCS

Evidence-based Management of a Dancer with Knee Pain

## Shop Talk

### Out In The Field

**Moderator:** Lynn Medoff, PT

### **4:00-5:00**

#### Music

### **4:00-4:30**

Joel Dixon, PT, MPT

Daily Clinic Operation in a Touring Theater Company

#### Dance

### **4:30-5:00**

Marilyn A. Roofner, PT

Backstage at Theme Parks-Insights in Treating Characters and Performers

Lynn Medoff, PT, MA

*Education Program Chair*

*lmedoff@hotmail.com*

## RESEARCH COMMITTEE

UPDATE: The purpose of the Research Committee is the provision of consultation to APTA members in the clinical or academic communities who request assistance of advisement with research activities: to facilitate clinical research in performing arts physical therapy throughout the country and to work closely with the education committee, assisting them with projects including staffing presentation slots at CSM. This is a good opportunity for anyone who enjoys presenting case studies and research in a professional forum setting. All committee members are friendly and cooperative, sharing ideas and information is helpful for anyone who likes to network for information from others with experience. The PASIG is interested in new members who would like to write abstracts of current performing arts research for publication in *JOSPT*. We believe the education of colleagues through exposure to performing arts physical therapy research will draw attention to the specialized area and expand membership. Currently the committee is also preparing extensive references for the 2004 preconference course on Dance Medicine. We hope to hear from you!

Lisa Sattler, PT

*Research Committee Chair*

*lsattler@erolo.com*

## PUBLIC/MEDIA RELATIONS COMMITTEE

Update: The committee has been busy updating the current website for the PASIG. Please come visit us there and provide us with any input to make this site work better for you! Visit us at: [www.orthopt.org](http://www.orthopt.org)

Jennifer (Adrienne) McAuley, PT

*Public/Media Relations Chair*

*mcauley@painpoints.com*

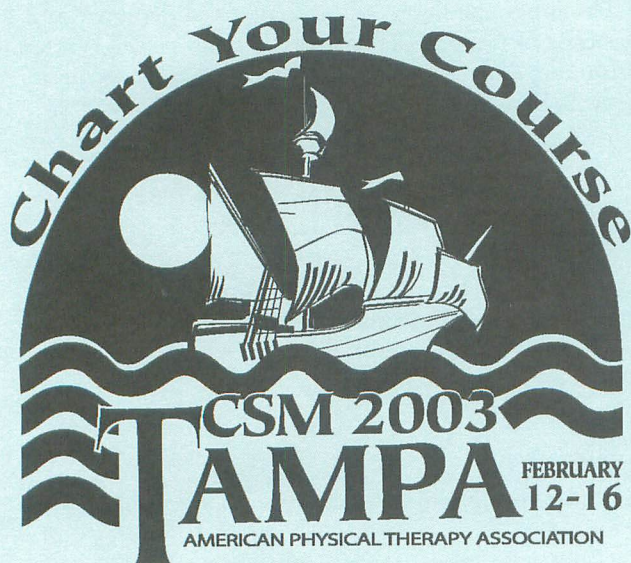
## MEMBERSHIP COMMITTEE

UPDATE: The Membership Committee is continuing to increase the outreach to all present and potential members of the PASIG. The present membership directory is actively being updated and we are encouraging other PT members in the IADMS and other performing arts organizations to consider becoming a PASIG member as well. The network of Regional Directors also are actively contacting membership on issues such as the Practice Analysis Survey, the upcoming CSM programming including the Preconference Course on Dance Medicine, as well as updates on new addresses and phone numbers of the membership. If you have not yet heard from your Regional Director or me, please do not hesitate to contact us with any information changes or requests you might have in addition to your practice and how the PASIG could better serve your professional needs or development.

Susan Clinton, PT, MHS

*Membership Chair*

*sclint@lsuhsc.edu*



# Performing Arts Special Interest Group MEMBERSHIP FORM:



To be a PASIG member, you must also be a member of the Orthopaedic Section. You may use this form for **new membership, change of address, or updating your information.**

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_ Email \_\_\_\_\_

APTA member number: \_\_\_\_\_

What percent of your patient population are performing arts patients?

\_\_\_\_ Dancers    \_\_\_\_ Gymnasts    \_\_\_\_ Skaters

\_\_\_\_ Musicians    \_\_\_\_ Singers    \_\_\_\_ Circus Performers

If you are affiliated with any performing arts schools, companies, or groups, please list them:

Do you accept Student Affiliations?  
\_\_\_\_ Yes    \_\_\_\_ No

Are you interested in serving as a mentor to other physical therapists or physical therapy students interested in the treatment of performing artists?

Physical Therapists \_\_\_\_\_ Yes    \_\_\_\_ No

Students \_\_\_\_\_ Yes    \_\_\_\_ No

Are you interested in serving on any of the PASIG Committees?

\_\_\_\_ Practice

\_\_\_\_ Public/Media Relations

\_\_\_\_ Education

\_\_\_\_ Regional Director

\_\_\_\_ Research

\_\_\_\_ Membership

## PASIG EXECUTIVE COMMITTEE

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**Treasurer:** Jennifer (Adrienne) McAuley, PT, OCS  
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**Secretary:** Susan C. Clinton, PT, MHS  
Department of Physical Therapy  
LSU - Health Sciences Center  
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## COMMITTEE

**Education Committee Chair:**  
Lynn Medoff, MPT, MA  
(contact information at left)

**Practice Committee Chair:**  
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Division of Physical Therapy  
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Brooklyn, NY 11201  
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E-mail: mhagins@titan.liu.edu

**Nominating Committee Chair:**  
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FAX: 718.246.6383  
E-mail: sbronner@liu.edu  
*Members:* Julie O'Connell, PT; Amy Frank, PT

**Public/Media Relations Committee Chair:**  
Jennifer (Adrienne) McAuley, PT, OCS  
(contact information at left)

## Regional Directors

(Subcommittee of Membership Committee) Chair  
Susan C. Clinton, MHS, PT (contact information at left)

- **Northeast** (CT, MA, ME, NH, NY, RI, VT)  
Marshall Hagins, Marijeanne Liederbach
- **Mid-Atlantic** (DE, DC, MD, NC, NJ, PA, VA, WV)  
Tara Jo Manal, Laura Schmitt
- **South** (AL, FL, GA, KY, LA, MS, SC, TN)  
Edie Shinde, Jeff Stenback
- **Central** (AR, IL, IN, IA, KS, MI, MN, MO, OH, OK, WI)  
Mark Erickson, Julie O'Connell
- **Northwest** (ID, MT, NB, ND, OR, SD, WA, WY)  
Jill Olson
- **West** (AK, AZ, CA, CO, HI, NV, NM, UT, TX)  
Cheryl Ambroza

## Membership Committee Chair:

Susan C. Clinton, MHS, PT  
(contact information at left)

## Research Committee Chair:

Lisa Sattler, PT  
1140 First Ave. Apt. 6  
New York, NY 10021-7961  
Ph: 212.858.6847  
*Members:* Scott Stackhouse



# Pain MANAGEMENT

SPECIAL INTEREST GROUP • ORTHOPAEDIC SECTION, APTA, INC.

## President's Message

*Joe Kleinkort, PT, MA, PhD, CIE*

What is the one pain syndrome that seems to cause more problems than all other pain syndromes? Carpal Tunnel Syndrome (CTS)!! This is a syndrome that is often misunderstood and overlooked and surely misdiagnosed. It has the highest number of lost workdays of any injury at the workplace, averaging 34! This doesn't seem that bad until we compare it to the number of lost work days for amputation, which averages 14 lost work days. The main reason for the huge number of lost workdays is that the majority of all diagnosed cases are treated with surgery. Approximately 28,000 cases of CTS were reported in 1999. The average cost per case is over \$13,000. The sad fact is as many as 80% of the cases can be resolved with various treatments, the most effective of which is augmented soft tissue mobilization (ASTM). This ingenious way of deep tissue remodeling is done with a variety of tools to remold collagen and reduce inflammation. With this technique, the therapist enjoys a near 80% efficacy rate with no real side effects. Low Level Laser is also a very effective modality that I have found effective for the past 25 years. I suspect the reason that some patients don't respond to this treatment is that as many are misdiagnosed. I have found that many so called CTS cases are actually cervical radiculopathies. Keyboarding is rarely the direct cause of the disorder. Of those diagnosed with CTS, 70% are women who have one or more of the following characteristics: they are pregnant, menopausal, obese, smokers, or diabetic. Those who are obese are more at risk. In addition, diet can have a major role, especially deficiency in vitamins B6 or C. With our skills in upper quarter assessment and early evaluation of signs and symptoms, CTS is one syndrome that our profession can almost totally eliminate if we are able to treat the person early enough.

I pray that you all have a most blessed holiday and hope that you all have a wonderful New Year. Please keep your thoughts and ideas coming. I hope to see you at the CSM in Tampa in February!

## Report of a New Orthotic Shoe Design with Heel Coil Spring Assist

**A New Aid to Ambulation and Lessening Effects of Walking Shock to the Spine**

*Joseph A. Kleinkort, PT, MA, PhD, CIE  
and Barry I Ungerleider, DO*



Patented Orthotic Coil Spring Shoe  
(ZCOIL™ Freedom 2000)

The authors have been evaluating a new orthotic shoe design, with a steel conical spring built into the heel of the shoe. The purpose of the orthotic shoe and its' coil spring heel is to provide improved support and shock-absorbing cushioning during ambulation. This orthotic shoe (Zcoil™ Freedom 2000 – Zcoil Inc, Albuquerque, NM) provides foot support and cushioning in excess of any previously evaluated footwear in the authors combined over 50 years of rehabilitation work. The shoe is of a 'double rocker' design according to the inventor, Al Z. Gallegos, Founder of Zcoil, Inc. Mr. Gallegos, a 72-year-old 5-mile-a-day runner, developed loss of cartilage in both of his knees, leading him to develop the cushioned, heel coil-spring equipped shoes.<sup>1</sup> The goal of these shoes is to lessen the amount of shock transmitted from the ground to the foot upwards to all body structures.

Studies done by Los Alamos National Laboratories, through the auspices of their industrial partnership office—the United States Department of Energy—showed the apparent decrease in shock transmission to be due to a slower transmission of shock proximally, when compared to the conventional elastomer cushioned shoes in this study.<sup>2</sup> Since force is equal to mass times velocity, slowing the velocity of the transmitted force may also lessen the effects of the foot and heel shock that gets transmitted upward to the rest of the body structures.

The amount of downward excursion of the heel was also studied by Sandia National laboratories and was found to be more than the conventional elastomer-running shoe.<sup>3</sup> The implication of this is a larger heel excursion, which is cushioned by the shoe and allows shock absorption. The design of the spring affects the shoe in such a manner that if a

patient has a leg length discrepancy due to injury or other cause such as scoliosis or other spinal imbalance, the spring will help to balance this out. In this manner some of the lateral 'wobble' motion of the hips and pelvis are balanced out by the springs, and the result is more mechanical forward efficiency in gait. The bottom line is that walking is easier, less force is transmitted to the body, and walking is more enjoyable and efficient.

Studies at the University of New Mexico Health Science Center found that the Zcoil shoe had "a coil spring positioned under the rearfoot and a rocker-design with a substantially thicker EVA midsole under the forefoot than is typically found in other running shoes."<sup>4</sup>

Barry Ungerleider, DO, one of the authors, who had been diagnosed with spinal stenosis, lumbar scoliosis, and prior lumbar disc herniations, found that walking became difficult after an injury at age 50. He stated, "Ambulation took on a different meaning for me after treating patients for twenty years, and then getting to the point where I could only walk with difficulty after a fall in January, 2000. Ambulation aids (canes, crutches, alpine walking sticks) were tried, and I began to notice the footwear was of equal or more importance." A search of available products resulted in some help, but not a 'leap forward.' In the summer of 2002, Dr. Ungerleider learned of the Zcoil orthotic and called the inventor. After a short wait, Dr. Ungerleider received his Zcoil orthotic shoes and began his trial. He reported an initial feeling like a 'moon-walk' sensation. After a period of time, he reports he got his 'sea-legs' and learned to adapt to the different skills needed to ambulate with this 'double-rocker' shoe with its heel spring. With the use of the shoes, Dr. Ungerleider reported improvement in functional abilities such as getting up from a chair, climbing steps, and walking with less of a limp, as well as a decrease in foot and back pain.

There are precautions that the therapist and patient need to follow when using this coil technology. The patient must watch out for hoses or cords, which could trip the patient, if caught in the exposed coil. Ladder rungs and barstool rungs may also be caught in the coils. An enclosed heel version of the shoe is available, but is not adjustable like the exposed coil spring model. The spring is padded with a durable rubber pad, which is expected to last from 2 months to 2 years in runners, depending on the mileage and other factors. The coil spring and heel are user-replaceable and cost about \$35 for a replacement set. This is another favorable factor in these shoes.

The interior of the shoe is well-constructed. The built-in orthotic is adjustable, and heat moldable (a hair-dryer is the heat source). For these reasons the inventor insists that anyone who dispenses the shoe be trained in its' proper fit and adjustment, and he has built a network of professionals who can train physical therapists in the use of this technology.<sup>1</sup> In the professional setting, the orthotics can be prescribed, fitted and dispensed, and monitored at the therapist's clinic. This is a new tool for the therapist to use in helping patients with more comfortable ambulation after injury, degenerative disease, or pre-existing orthopaedic conditions.

Our additional impression was that this design of orthotic shoe caused muscles in the lower extremity to be exercised and strengthened due to the 'floating' multidirectional movement of the heel design. We believe this may contribute to enhanced circulation, and may be useful in rehabilitation of circulatory disorders of the lower extremities. We also believe that the fertile minds of our fellow therapists will find uses for this orthotic shoe that we have not yet envisioned, in order to improve the health and comfort of our patients.

## CONCLUSION

In the authors' experience and opinion (after evaluating the orthotic shoes themselves, and consulting with the inventor), these heel spring cushioned orthotic 'double-rocker' shoes represent an important new tool in ambulation aides for the patients of physical therapists. Other applications of this shoe technology are expected to be seen in competitive sports, and in workers who must stand and walk long hours (nurses, etc.).

## REFERENCES

1. Stavig M. Final Report of NMSBA Project For Z-Coil (Database # 3985), Sandia National Laboratories, Albuquerque, NM, 2001 (Heel Spring Excursion).
2. Hopkins SM. Final Project Report: Evaluation Of Z-Tech Recoil Running Shoes (LA-UR 95-4079) Los Alamos National Laboratory, ESA-Design Engineering, Los Alamos, NM, 1995 (Spring Shock Delaying Characteristics).
3. Keikhosrow F. Biomechanical Study of the Z-Coil Shoe, University of New Mexico Health Sciences Center, Albuquerque, NM, 2001 (Shoe Loading Characteristics and Design).
4. Ungerleider B. Personal Communication with Zcoil Inventor Alvaro Gallegos, Founder, ZCOIL, Inc, Albuquerque, NM, 2002 (Uses and Goals Of Orthotic Shoe).

### Internet Links:

[www.walkingbetter.com](http://www.walkingbetter.com)  
[www.worldambulationfoundation.org](http://www.worldambulationfoundation.org)  
[www.zcoil.com](http://www.zcoil.com)

## The Passing of a Giant in Pain Management

It is with sadness that I inform you of the death of the Director Emeritus of the American Academy of Pain Management (AAPM), Richard Weiner, PhD on May 7, 2002 after a nearly a year-long battle with pancreatic cancer. He, along with his wife Katherine Weiner, PhD, founded the American Academy of Pain Management in 1988. Dr. Weiner believed in the vision and importance of continuing education and the sharing of knowledge between the health care professionals who provide treatment to those in pain.

I first met Dr. Weiner in 1989. He was a caring, humble, honest, and open man who envisioned that all health care professionals could come together to provide care for patients with pain. The AAPM held its 13th Annual

Conference in Reno, Nevada on September 26-29, 2002. The theme was "Renewing Our Commitment to Multidisciplinary Pain Management." The speakers included—MDs, RNs, CRNAs, PhD psychologists, chiropractors, physical therapists, massage therapists, dentists, and acupuncturists—an excellent cross section of health care professionals dedicated to sharing knowledge of pain relief. While in attendance at the conference, titles were not used and all were treated with equal respect. Dr. Weiner was one of 40 people included in the UCLA Biomedical Library History of Pain Collection for outstanding contributions to the field of pain management. Dr. Weiner was a leader in the board certification process for pain management of all health care professionals through the AMA. A psychometrically valid board certification testing system was established and has been repeatedly validated since 1991.

The Richard Weiner Pain Education Fund has been set up c/o AAPM, 13947 Mono Way #A, Sonoma, CA 95370 or call 209-533-9744.

We shall miss Dr. Weiner for his leadership, his vision, his love, and his caring for this Academy but mostly for him as a fellow professional and human being.

*Tom Watson, PT MEd, Fellow AAPM  
and Past President of the APTA Pain Management SIG*

## PAIN MANAGEMENT SPECIAL INTEREST GROUP BOARD LISTING

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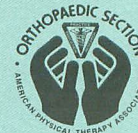
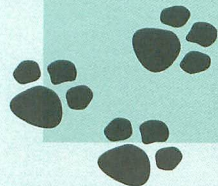
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# Animal Physical Therapist

## SPECIAL INTEREST GROUP Orthopaedic Section, APTA, Inc.



### ANIMAL PHYSICAL THERAPIST SPECIAL INTEREST GROUP DIRECTORY OF OFFICERS & CHAIRPERSONS

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#### Vice President and International Liaison

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### THE ANIMAL PHYSICAL THERAPIST SPECIAL INTEREST GROUP (ANIMAL SIG) UPDATE:

1. Orthopaedic Section member and nonmember directories are available through the Section Office 800-444-3982 Fax: 608-788-3965 or E-mail: [ssnyder@orthopt.org](mailto:ssnyder@orthopt.org). There currently are 544 members.
2. State Liaisons: To date there are 33 states that have Animal SIG Liaisons. Contact Siri Hamilton for further information 865-974-2993 or E-mail: [sirivtpt@utk.edu](mailto:sirivtpt@utk.edu).
3. The APTA has a web site that lists all of the State Practice Acts: [www.apta.org/advocacy/state/state-practice](http://www.apta.org/advocacy/state/state-practice)

### REPORT ON THE 2ND INTERNATIONAL SYMPOSIUM ON REHABILITATION AND PHYSICAL THERAPY IN VETERINARY MEDICINE

by David Levine, PT, PhD, OCS

This meeting was held August 10-14, 2002 in Knoxville, Tennessee, and was co-chaired by David Levine, PT, PhD, OCS and Darryl Millis, MS, DVM, DACVS. The weather cooperated beautifully, and there were 416 attendees from 22 nations. Attendees participated in daily breakfast forums, scientific sessions, case reports, laboratories, and social events. The proceedings can be purchased by calling the UT conference center at 865-974-0250 (please ask for Barbara Benjamin). The proceedings are 270 pages and contain the notes from the meeting. The symposium once again provided a unique forum designed for veterinarians, physical therapists, veterinary technicians, physical therapist assistants, researchers, and graduate and doctoral students of these fields to come together and exchange information. Breakfast roundtables were an extremely popular addition and drew over 200 people per day. The exhibit hall was the location for several receptions and was a great place to gather. Some exhibitors and sponsors included Animal Planet and The Discovery Channel, Novartis Animal Health USA, Iams Company, Northeast Seminars, Ferno-Washington, American Canine Sports Medicine Association, WB Saunders Publishing, and many others.

Highlights included a luncheon at the Veterinary College followed by over 20 laboratory opportunities (participants rotated through their 5 choices), both equine and canine.

A wonderful banquet sponsored by Animal Planet and Alameda East Veterinary Hospital capped off the meeting and Dr. Kevin Fitzgerald, DVM, PhD of Alameda East and E.R. Vets on Animal Planet, provided the entertainment with a fantastic comedy act. Discussions were held as to where the next meeting should be and if an international association should be formed. Both North Carolina State College of Veterinary Medicine in Raleigh, NC and Amsterdam

### CALENDAR OF EVENTS

1. The home study course BASIC SCIENCE FOR ANIMAL PHYSICAL THERAPISTS is still available. Contact 800-444-3982 or 608-788-3982 for more information.
2. 2003 Combined Sections Meeting will be held in Tampa, Florida February 12 – 16, 2003 for information please go to: [www.apta.org/Meetings/csm2003](http://www.apta.org/Meetings/csm2003).
3. There will be an evening meeting of the SIG officers, the Committee Chairs, and newly elected SIG officers after the Business Meeting on Friday, February 14. Details will be provided at the Business Meeting.

(Netherlands) were possible choices that were discussed. A vote taken indicating the majority of attendees would like to go to NC State for the next meeting but that the Netherlands should also host within the next 5 years... so stay tuned!

Regarding the creation of an association, the first thing that needs to be done is the development of a vision for the association. It's important to do this first before moving forward with trying to solve problems, make group decisions, etc. A committee to research, draft mission and vision statements, determine the scope of the association, calculate financial needs, and then report back to everyone as a whole is being planned.



*Robert Taylor, DVM, Demonstrating a Canine Physical Examination*



*International Colleagues in Animal Rehabilitation*

## INTERNATIONAL COLLEAGUES IN ANIMAL REHABILITATION

At the 2nd International Symposium, colleagues from numerous countries met and prepared a presentation. The group decided to share information about education and practice in their respective countries. Listed below is a contact person and contact information from the countries represented as well as summary information about education and practice in animal rehabilitation in the respective countries.

**Argentina** – Ruben Somoza, DVM, owner - veterinary and emergency clinic and physical therapy center  
emervet@fibertel.com.ar

Education: Overview of physical therapy in veterinary school.

Practice: Veterinary physical therapy is performed by veterinarians, none by PTs.

Physical therapy knowledge is increasing by way of conferences.

**Australia** – Narelle Stubbs, Physiotherapist. International Representative and Education

narelle\_stubbs@hotmail.com www.equestrianphysio.com  
Australian Physiotherapy Association (APA)

Australian Animal Physiotherapy Association (AAPA), established 1999, recognized by the APA and the AVA (Australian Veterinarian Association)

Education: Master's post-professional program; Master's in Animal Studies in Veterinary Physical Therapy starting Jan -Feb 2003. Applications Oct. 2002.

Queenslan University – Physiotherapy School and Veterinary School – 50/50

Pre-requisites: Physiotherapy Degree (4 years) + 2 years of human physiotherapy practice

Distance (external) (WEB CCT) and on-site (internal)

Program heads: Drs. Gwen Jull (PT) and Dr. Wayne Brydon (Veterinary)

Overseas students are welcome.

Practice:

Physiotherapy and Veterinary both are protected titles

Veterinary Act guidelines: veterinary permission needed pretreatment; noninvasive techniques. Act is currently under review by the APA and AVA.

**Austria** – Barbara Bockstahler, veterinarian at the Veterinary University of Vienna, barbara.bockstahler@chello.at

**Brazil** – Alceu Cardoso – veterinarian and physical therapist  
alceufisiovet@ig.com.br

**Canada** – Laurie Edge-Hughes, President, Canadian Horse and Animal Physical Therapist Association (CHAP)  
physio@fourleg.com www.animalptcanada.com

Education: CHAP offers introductory, advanced and special interest courses in equine and canine rehabilitation for registered physiotherapists.

Practice: Physiotherapist, physiotherapy, physical therapy (and all related titles) for humans are protected.

Use of the terms with animal practice is under debate.

Many provincial veterinary associations opening their acts to allow referral to physiotherapists.

**England** – Sara Barnes – sarab@saddletech.freemove.co.uk

**Finland** – Hanna Tuominen – physical therapy

hanna.tuominen@cc.spt.fi

www.pysioterapia.net/elainfysioterapia

Education: 3.5 years training to be a licensed PT

Special studies in animal physical therapy; previously not restricted to PTs.

2002 – special studies began at the Polytechnic of Lahti with only PTs eligible.

Practice: Animal treatment is allowed by someone other than the veterinarian, if the person has the education. The education is not described. The title of animal physical therapist is allowed for PT use only.

The Finnish Animal Physiotherapy Association was founded in 1997 as a subgroup of the Finnish Physiotherapy Association.

**Germany** – Andreas Zohmann, DVM

vierbeiner-reha@t-online.de

**Israel** – Lisi Sharon, DVM, Head of a small animal veterinary clinic, in charge of opening the section of PT in the Koret School of Veterinary Medicine Hospital of Hebrew University. sharon@eindor.org.il drlisi@eindor.org.il

Education: Overall goal of the section is to inform and develop the field through improving veterinary knowledge and results in veterinary physical therapy.

Practice: No real PT is done with small animals – more by veterinarians than PTs.

**Italy** – Caterina Vallani, DVM, physiotherapy and rehabilitation of small animals in a clinic for 10 years.

vallani@maganet.net

Education: no formal education but individual collaboration of veterinarians and PTs and human physicians.

Practice: PTs are not recognized to practice with animals.

**Netherlands** – Anke Vaessen

info@cursuscentrum.nl

www.cursuscentrum.nl www.nvfd.nl

Education: 4-year physiotherapy degree

Animal physiotherapy (Dutch) – for registered PTs. 2 1/2 years part-time; mentorship; apprenticeship; dogs and

horses. Registered by the Ministry of Agriculture.

International course for PTs from other countries and for non-PTs (veterinarians and veterinary nurses).  
Association: NVFD – Dutch Association for animal physical therapy.

Practice: Animal physical therapy is a recognized profession since 1992.

**Spain** – Toni Ramon, physical therapist  
aramonboix@fisioterapeutes.org

Education: Postprofessional course for veterinarians and physical therapists on equine rehabilitation of 180 hours.  
Ginbernat School of Physical Therapy (autonomous University of Barcelona).

2001 – Commission of Veterinary Physical Therapy from the college of Fisioterapeutes de Catalunya (Professional Association of Catalonia's Physical Therapy) – working to develop a project in continuing education in small animal rehabilitation and physical therapy.

**South Africa** – Rosanne LeJeune rkejeune@global.co.za  
Education: 4-year physiotherapy degree; apprenticeship with an experienced physiotherapist.

Annual weekend conferences, tutorials, clinical observations, and supervised time.

Discussing a master's program.

Practice: Veterinary permission is required for all physiotherapy assessment and treatment. Physiotherapists are required to work within the constraints of the veterinary act.

**Sweden** – Anna Bergh – licensed PT in veterinary medicine  
anna.bergh@ah.slu.se www.slu.se

Education: DVM – 5 1/2 years; PT (BSc, PT) 3 years licensed in humans; Course in veterinary medicine for licensed PTs at the Swedish University of Agricultural Sciences.

Practice: a license for PTs to work on animals is under discussion by the state officials.

Anyone may treat an animal, as long as the animal does not get hurt or suffer.

Only veterinarians can do invasive techniques.

PTs in veterinary clinics work under the veterinarian's responsibility.

A governmental proposition is to further regulate the treatment of animals.

**United States of America** – Cheryl Riegger-Krugh, PT, ScD physical therapy educator in a human PT Program  
cheryl.riegger-krugh@uchsc.edu  
www.orthopt.org www.apta.org

Education: certification in canine rehabilitation at the University of Tennessee for veterinarians, physical therapists, veterinary technicians, and physical therapist assistants.

Consideration of a parallel equine course sequence.

Consideration of a distance learning course sequence.

Drafting of distinctive objectives for the 4 groups in educational training.

Practice: Each state is different and most have "human" in the practice act – for those states the PT can collaborate with veterinarians but can not call what they do "physical therapy."

In a few states, only a veterinarian or veterinary technician can treat animals (eg, NY).

Attempts have been made to have a liaison with the AVMA.

### Animal SIG Meeting at the Symposium

During the 2nd International Symposium, there was a meeting of the Animal Physical Therapist Special Interest Group (Animal SIG). Cheryl Riegger-Krugh, PT, ScD shared this information with Debbie Gross Saunders, PT, MS, Editor of *Wizard of Paws* for publication in the next issue of *Wizard of Paws*.

The intended agenda for the meeting emphasized SIG information sharing and updates regarding physical therapy practice for animals, including legal issues and opportunities for volunteering within the SIG. In discussion with veterinarians at the symposium, it became clear that some veterinarians wanted to attend the Animal SIG meeting. Attendance by a number of veterinarians as well as many of the international representatives (both DVM and PT) was welcome and changed the focus of the meeting.

Discussion among the attending members of the APTA and AVMA resulted in the following outcomes:

1. acknowledgement that the 2 professions need each other to provide high quality rehabilitation care for animals;
2. a stated desire by several veterinarians to approach the AVMA to form a complementary group to the Animal SIG within the AVMA. This group would be composed of AVMA members interested in physical therapy practice for animals;
3. respect by each profession for the role provided by the other profession in rehabilitation care for animals; and
4. the suggestion by Robert Gordon, DVM that a commission be formed to study the physical therapy and veterinary practice acts. The commission could consist of 3 veterinarians and 3 physical therapists, including the presidents of the AVMA and APTA. This commission would work out mutually acceptable language for the practice of rehabilitation with animals. Each profession would then pursue changes to their respective practice acts, knowing that the language was already acceptable to the other profession.

### CALL FOR SUBMISSIONS FOR A ORTHOPAEDIC PHYSICAL THERAPY PRACTICE SPECIAL ISSUE

In 2003, one edition of *Orthopaedic Physical Therapy Practice* (OP) will feature the Animal Physical Therapist Special Interest Groups similar to the OP featuring the Performing Arts SIG in June of this year. Please review the featured section of the 14(2) publication and OP's Instructions to Authors in consideration of a submission. We welcome various types of submissions for the 2003 edition as well as future Animal Physical Therapist SIG newsletters. Submissions may include a review article of some aspect of animal rehabilitation, original case studies, and abstracts of published articles related to rehabilitation for animals. This process will help bring information and published research literature to readers and help in the process of assessing the scope of the practice of rehabilitation for animals. Due date for submissions is February 20, 2003.

### CASE STUDY

Deborah Gross Saunders, MSPT, OCS, Editor of *Wizard of Paws*

Blitz is a 3-year-old male German Shepherd dog, employed by the State of Connecticut's Department of Correction. His employment responsibilities include security and patrol within the correctional facilities in Connecticut.

In July 2001, his handler noticed he was not performing at 100%. He was training for the Canine Olympics during this time period. His muscle timing was off and his energy level was diminished. A veterinarian diagnosed a muscle pull and the condition was treated conservatively with rest and Rimadyl. Training continued and he competed in the Canine Olympics. He performed well, but his handler knew something was wrong. At the Canine Olympics the year prior, Blitz took a gold medal and the performance was not close to the quality or timing of the previous year. Blitz was taken to an orthopaedic veterinarian and an examination and radiograph revealed degenerative changes at one disc level and traumatic changes at another disc level. Surgery was performed on 10/02/01 to both disc levels. He was kept in the hospital for 4 days, and then returned to the home of the handler.

After the surgery, Blitz slowly progressed, and his handler became very concerned about the lack of progress. Blitz was unable to meet the demands of his job in January and the handler was possibly looking at retiring the dog at his young age and training another dog.

An initial physical therapy evaluation was performed on January 19, 2002 after a referral from the veterinarian.

The following is a summary of his findings:

- 1) A functional decrease in lumbar and thoracic range of motion; particularly noted with sit commands, defecation, and his gait patterns.
- 2) Balance and proprioceptive deficits, especially with turns, fatigue, and postural forces.
- 3) A presence of a flexor withdrawal response, and fairly good proprioceptive responses in the hindlimbs. It also appeared, from a verbal reaction, that deep pain was present.
- 4) Limitations in passive intervertebral mobility of the caudal thoracic region and lumbosacral region.
- 5) Atrophy of the spinal musculature and hindlimb musculature.
- 6) Functional deficits in running, trotting, jumping, sitting, and walking on slippery surfaces.
- 7) Endurance deficits—Blitz became fatigued after approximately 20 minutes of activity.

Blitz's handler was educated on a home program to be performed daily. The program consisted of tail pulls for unspecified lumbar traction, rhythmic stabilization exercises, walking in snow or water, and range of motion exercises. Treatments also consisted of joint mobilization on the affected levels to increase the passive intervertebral mobility.

Subsequent visits included theraball exercises for hindlimb and spinal strengthening and joint mobilization. Thoracic C-SNAGs were performed (Figure 1) to increase thoracic extension.

Blitz demonstrated a significant increase in endurance, had an increased attention span, and increased in strength in his hindlimbs. He was able to tolerate approximately 15 minutes on the theraball, in addition to running activities. He was run through a training facility and crawling was added to his home program. The treatment sessions continue to be performed 1 time per week, with daily training by his handler. At the most recent return visit to the orthopaedic surgeon, the following was reported:

- 1) Lumbar range of motion has been restored to normal. Passive intervertebral motion is slightly limited at the thoracolumbar junction (2/5, whereas 3 is normal, 5 is hypermobile, and 0 is hypomobile).
- 2) Blitz continues to experience balance and proprioceptive deficits, but these deficits are improving. He is able to take turns on nonslippery surfaces with minimal deficits. He does continue to fatigue quickly and the deficits become more apparent.
- 3) The flexor withdrawal reflex continues to be present for the entire hindlimbs. The cutaneous trunci reflex is also now present throughout the lower thoracic spine. The proprioceptive reflex is slightly diminished, but this continues to improve.
- 4) The strength in his thoracic and lumbar spine and hindlimbs continues to improve. He is now able to transition from a down to a sit to a stand without deficits. He is able to go under low objects for 3 to 5 repetitions without fatigue. In addition, he is able to trot and run with minimal deficits. The right lower extremity circumducts through the swing stage of gait.
- 5) Endurance continues to improve. He is able to tolerate 30 to 45 minutes of activity. He does demonstrate gait deviations after his therapy sessions. However, he continues to demonstrate a drive to continue working.

After the visit, he was returned to narcotic duties at work, but not full duty. He is unable to work on slippery surfaces and does not have the endurance, proprioception, balance, or strength to return. He will continue with physical therapy and will progress appropriately with increased endurance training, swimming, work hardening, and challenged balance and proprioceptive exercises (aquatic therapy was not started earlier secondary to a lung infection).



Figure 1. Performing thoracic SNAGs (sustained natural apophyseal glides) to increase thoracic extension. The therapist is applying a sustained glide to the lower thoracic region at a 75° angle while the handler guides the dog through thoracic extension. This is repeated 3 times on various levels.

# Orthopaedic Physical Therapy Practice

## Instructions to Authors

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1. *Orthopaedic Physical Therapy Practice (OPTP)* will publish articles pertaining to clinical practice. Articles describing treatment techniques as well as case studies and reviews of literature are acceptable. Language and format of articles should be consistent with the *Guide to Physical Therapist Practice*.
2. Manuscripts should be reports of personal experiences and written as such. Though suggested reading lists are welcomed, references should otherwise be kept to a minimum with the exception of reviews of literature.
3. Manuscript Preparation Guidelines (*details can be found at [www.orthopt.org](http://www.orthopt.org)*)
4. Manuscripts are accepted by mail or electronically. Save your monograph to a 3 1/2" IBM-compatible computer disk in Microsoft Word or plain text format. Provide 2 hard copies of the monograph. Protect any original photographs and artwork for shipment. The manuscript should be sent to:

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## AAOMPT 2003 - FIRST CALL FOR ABSTRACTS



The 9th Annual Conference of the American Academy of Orthopaedic Manual Physical Therapists will be held **October 16-19, 2003 (Reno, NV)**. Interested individuals are invited to submit abstracts for presentation in slide or poster format. The AAOMPT research committee chairman must receive the abstract by **June 1, 2003**. Abstracts received after this date will be returned. You will be notified of the acceptance/rejection of your abstract in July of 2003. If you have any questions call the research committee chairman at (828)-227-2126 or email at: [twatson@wcu.edu](mailto:twatson@wcu.edu)

**CONTENT.** The Academy is soliciting all avenues of research inquiry from case-report and case-series up to clinical trials. The Academy is particularly interested in research evaluating intervention strategies using randomized-controlled clinical trials. The abstract should include 1) Purpose; 2) Subjects; 3) Method; 4) Analyses; 5) Results; 6) Conclusions; 7) Clinical Relevance.

**PUBLICATION.** The accepted abstracts will be published in *The Journal of Manual & Manipulative Therapy*, which has readership in over 40 countries.

**SUBMISSION FORMAT.** The format for the submitted abstracts is as follows:

The abstract may be submitted in either hardcopy (see shipping) or by email to the research committee chairman. The abstract should fit on one page with a one-inch margin all around. The text should be typed as one continuous paragraph. Type the title of the research in ALL CAPS at the top of the page followed by the authors' names. Immediately following the names, type the institution, city, and state where the research was done. Please include a current email address where you can be contacted. If submitting by mail include a computer diskette with the abstract in MS Word format.

**PRESENTATION.** The presentation of the accepted research will be in either a slide or poster session. The slide session will be limited to 15 minutes followed by a 5-minute discussion; this session will be primarily for research reports and randomized clinical trials. The poster session will include a viewing and question answer period and will be primarily for case report/series.

**RESEARCH PRESENTATION AWARD.** The research platform presentation deemed of the highest quality of those presented at the annual conference will be awarded the AAOMPT Excellence in Research Award.

**EMAIL.** Submissions by email should be in MS Word format and sent to: [twatson@wcu.edu](mailto:twatson@wcu.edu)

**SHIPPING.** For hard copy submission, insert cardboard backing in the envelope to prevent damage. Mail the abstract, diskette, and copies to the AAOMPT research committee chairman at:

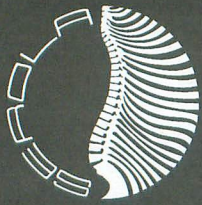
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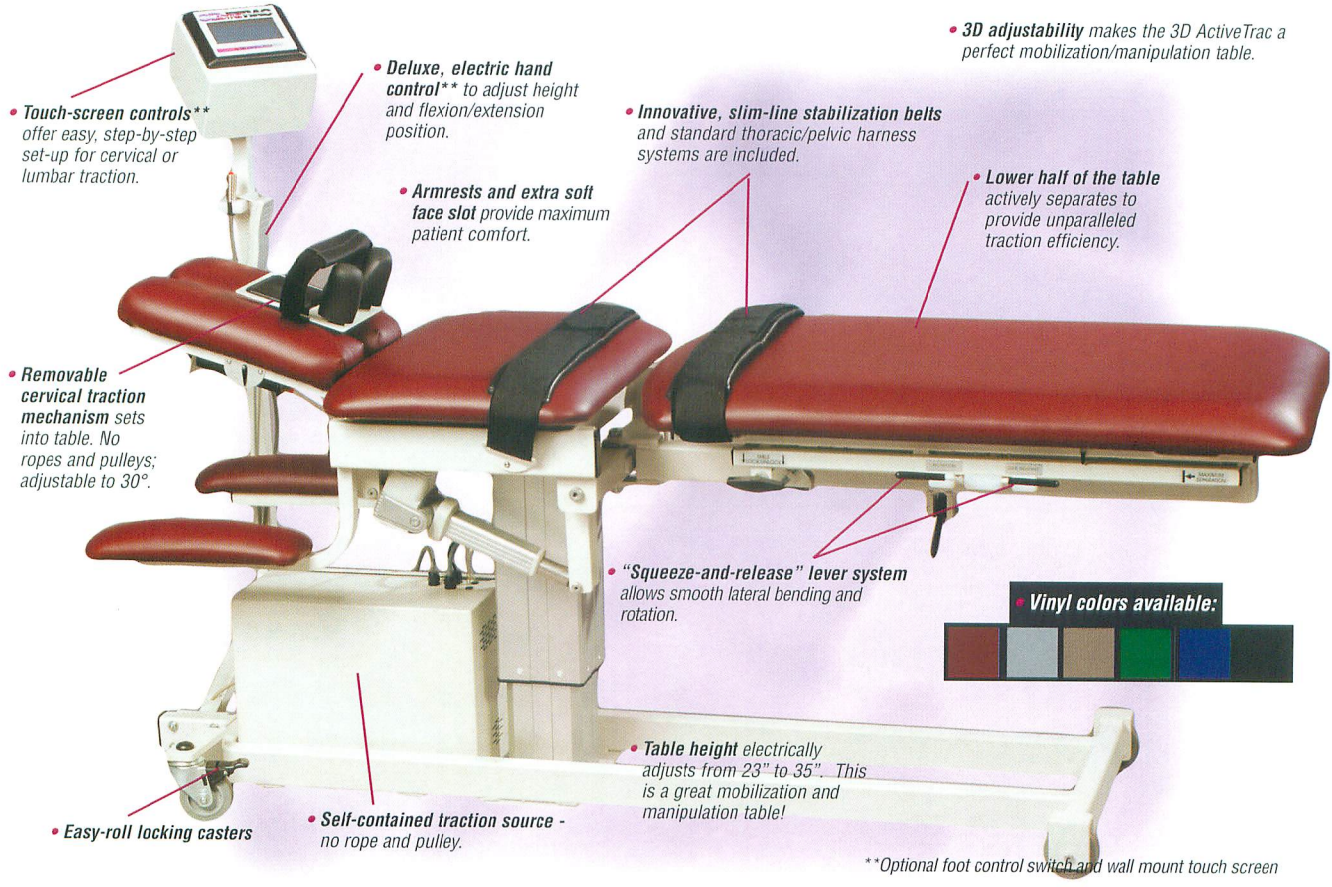
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- **Innovative, slim-line stabilization belts** and standard thoracic/pelvic harness systems are included.
- **Lower half of the table** actively separates to provide unparalleled traction efficiency.
- **Removable cervical traction mechanism** sets into table. No ropes and pulleys; adjustable to 30°.
- **Armrests and extra soft face slot** provide maximum patient comfort.
- **"Squeeze-and-release" lever system** allows smooth lateral bending and rotation.
- **Vinyl colors available:**
  - Red
  - White
  - Black
  - Green
  - Blue
  - Grey
- **Table height** electrically adjusts from 23" to 35"... This is a great mobilization and manipulation table!
- **Easy-roll locking casters**
- **Self-contained traction source** - no rope and pulley.

\*\*Optional foot control switch and wall mount touch screen

Discover how the 3D ActiveTrac can give you the widest range of therapeutic techniques for treatment.

Leasing Options Available

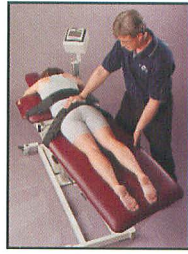
**Smooth, Steady 3D Adjustments**

15° ROTATION

15° LATERAL BENDING

20° FLEX/25° EXTEND

**All dimensions are adjusted with easy, one-handed controls. The clinician controls the position of the table and patient at the same time.**



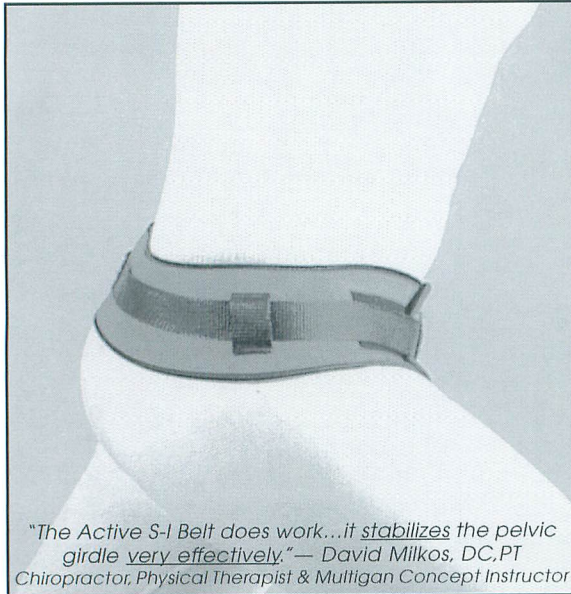
"The 3D ActiveTrac not only treats a wide variety of musculoskeletal disorders but at the same time reduces the physical stress and strain on the clinician."  
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